DECEMBER, 1913.

ENTOMOLOGICAL NEWS

Vol. XXIV. No. 10.

Titian Ramsey Peale (1800-1885).

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published monthly, **excepting August and September,** in charge of the Entomological Section of the Academy of Natural Sciences, Philadelphia, and the American Entomological Society.

ANNUAL SUBSCRIPTION, $2.00 IN ADVANCE.

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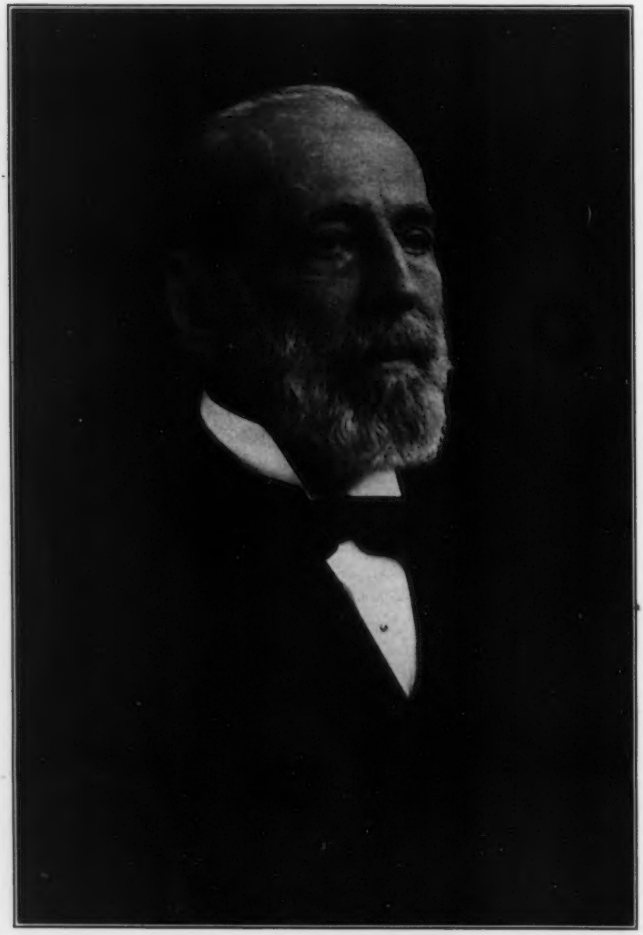

DR. PHILIP REESE UHLER.

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AND

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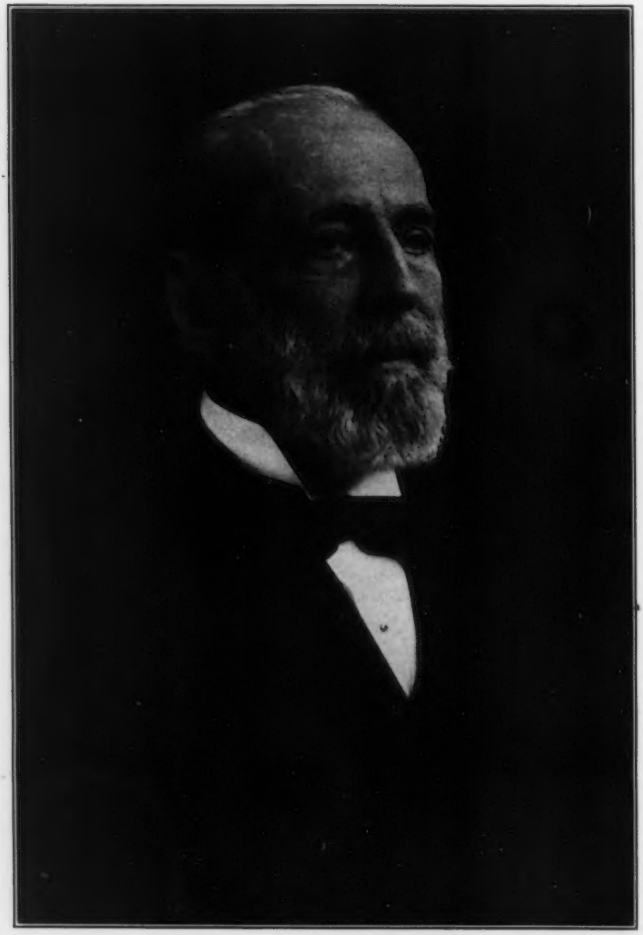
Philip Reese Uhler, LL.D.

(Portrait, Plate XV, from a photograph taken November 17, 1911.)

These men of the old school were lovers of nature. They knew nature, as a whole, rather than as a fragment or a succession of fragments. They were not made in Germany or anywhere else, and their work was done because they loved it, because the impulse within would not let them do otherwise than work, and their training, partly their own, partly responsible to their source of inspiration, was made to fit their own purposes. If these men went to Germany, as many of them did, it was for inspiration, not for direction; not to sit through lectures, not to dig in some far-off corner of knowledge, not to stand through a doctor's examination in a dress coat with a major and two minors, not to be encouraged *magna cum laude* to undertake a scientific career. The career was fixed by heredity and early environment. Nothing could head them off and they took orders from no one as to what they should do, or what they should reach as conclusions. They did not work for a career—many of them found none—but for the



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These words of Dr. David Starr Jordan apply well to the American naturalists of the period when there was actively at work in this country what has been termed the second generation of distinguished American entomologists. This group consisted of Le Conte, Horn, Packard, Scudder, Cresson, Uhler and Grote. Le Conte was the oldest of the group; was born in 1825, living and working for 58 years. Uhler, born ten years later than Le Conte, lived to be 78 years of age. Scudder, born two years later than Uhler, died at the age of 74. Cresson, born a year later than Scudder, is the only survivor of the group and has now reached the age of 75. Packard, born the year after Cresson, lived for 66 years. Horn, born still a year later, lived for 57 years; and Grote, still a year later, died at the age of 62. Think what the work of this group of men did for North American entomology!

Philip Reese Uhler, who passed away at his home in Baltimore, October 21st, 1913, was a man of great culture and charm, an indefatigable worker, and a typical naturalist at the period of his ripe manhood. He was born in Baltimore, June 3, 1835. He was son of George Washington Uhler, a well-to-do and philanthropic merchant of that city, and of Anna Maria (Reese) Uhler. His great grandfather, Erasmus Uhler, came to America from England and served as a private in the Revolutionary army: and his maternal great grandfather was a Captain on the American side in the war of the Revolution. In the second war with England, his paternal and maternal grandfathers were both actively engaged in the battle of North Point, in which the latter, Captain John Reese, was wounded.

Doctor Uhler received his early education at Baltimore College and at the latin school of Daniel Jones. He was interested in natural history as a boy, and began to collect at an

early age. When he was ten years old his father bought a farm near Reisterstown, and it was here that he acquired his fondness for the study of insect life. His interest in insects was discovered and encouraged by J. F. Wild, a German entomologist, and by the Rev. John G. Morris, pastor of the First English Lutheran Church, which Doctor Uhler's grandfather helped to found. In 1863, at the age of twenty-eight years, he was appointed Assistant Librarian of the Peabody Library, and early in 1864 went to Cambridge at the call of Louis Agassiz. He was paid for his services as assistant to Professor Agassiz and as Librarian in the Museum of Comparative Zoology, and taught entomology to some of the undergraduates. He also gave a series of lectures on entomology in the lecture room of the M. C. Z. He was also at the same time a regularly entered student in the Lawrence Scientific School of Harvard University, attending Louis Agassiz's lectures in zoology and geology from the spring of 1864 to the end of the first term in 1867. He attended also lectures by Asa Gray, Jeffries Wyman, Alexander Agassiz, and N. S. Shaler. At the end of the first term, in 1867, he was called away from Cambridge rather suddenly, when Professor Louis Agassiz was in a very helpless condition and unable to give Uhler the degree of Bachelor of Science, which he was entirely qualified to receive. The degree, however, was later given to him by the University. Among his papers is a most appreciative note received from Dr. Oliver Wendell Holmes just before he retired from the work at Harvard.

Before he went to Harvard, Uhler had become a member of the Academy of Natural Sciences of Philadelphia (1858), and of the Entomological Society of Philadelphia (1859). He had published a number of systematic papers on Coleoptera, Neuroptera, and Hemiptera, and had translated for the Smithsonian Institution and edited (with the assistance of Osten Sacken) Hagen's elaborate Synopsis of the Neuroptera of North America, published by the Smithsonian in 1861. It was this early work which attracted the attention of the elder Agassiz.

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At one time Doctor Uhler was officially known as the Entomologist of the Hayden Survey, and while Assistant Librarian of the Peabody Library he was given leave of absence to accompany a survey party on an expedition to Colorado. In Baltimore he was at an early date energetic in his endeavors to encourage the study of natural science in the public schools of Maryland, and delivered addresses on scientific subjects throughout the State. He always took the keenest interest in the Maryland Academy of Sciences, of which he was Curator, Secretary, Vice-President and later President. In 1900 he was given the honorary degree of LL.D. from New York University, and in 1912 he was made an honorary member of the International Congress of Entomology at Oxford.

Doctor Uhler was one of the founders of the Entomological Society of Washington, and used from time to time to come to Washington for the evening meetings of the Society, always having some interesting topic to present. He was a fluent and delightful speaker with a charming personality, and inspired interest in the most technical subject by his lucid method of presentation. On several occasions also he entertained the Society at his home in Baltimore, so that Washington entomologists had the great privilege of personal friend-

ship with this veteran naturalist denied by distance to most of the third and fourth generations.

I greatly regret that space will not permit me to present a fuller account of Doctor Uhler's useful and beautiful life. Mrs. Uhler tells me that he left a mass of manuscripts and correspondence, and it is greatly to be hoped that a lengthy account of his career may be published. The world does not seem to be making this type of man nowadays, and it is a pity.

L. O. HOWARD.

The Neotropical Tipulidae in the Hungarian National Museum (Diptera).—II.

By CHARLES P. ALEXANDER, Ithaca, N. Y.*

(Plate XVI.)

Tribe 2—ANTOCHINI.

Genus **Teucholabis** Osten Sacken.

1859. *Teucholabis* Osten Sacken; Proc. Acad. Nat. Sci. Phila.; p. 223.

Teucholabis is the dominant Antochine genus in the tropics of the New World. Many species were included in the collection and are considered in the following pages.

Teucholabis flavithorax Wiedemann.

Two specimens, ♂ ♀, from Callanga, Peru.

Teucholabis tristis, sp. n. (Pl. XVI, Fig. 1).

Head and thorax shining black; wings infumed with brown; *Rs* long, only slightly arcuated.

Female.—Length, 5.6 mm.; wing, 6 mm.

Rostrum and palpi dark brown; antennæ dark brownish black; front, vertex and occiput dark shining black.

Thoracic dorsum shining black, the pronotum dull yellowish, this color continued caudad as a narrow stripe along the lateral margin of the præscutum to the wing root; pleuræ black. Halteres brown, knob yellow.

Legs, coxæ and trochanters brown, femora yellowish brown, the tip

*Contribution from the Entomological Laboratory, Cornell University.

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ship with this veteran naturalist denied by distance to most of the third and fourth generations.

I greatly regret that space will not permit me to present a fuller account of Doctor Uhler's useful and beautiful life. Mrs. Uhler tells me that he left a mass of manuscripts and correspondence, and it is greatly to be hoped that a lengthy account of his career may be published. The world does not seem to be making this type of man nowadays, and it is a pity.

L. O. HOWARD.

The Neotropical Tipulidae in the Hungarian National Museum (Diptera).—II.

By CHARLES P. ALEXANDER, Ithaca, N. Y.*

(Plate XVI.)

Tribe 2—ANTOCHINI.

Genus **Teucholabis** Osten Sacken.

1859. *Teucholabis* Osten Sacken; Proc. Acad. Nat. Sci. Phila.; p. 223.

Teucholabis is the dominant Antochine genus in the tropics of the New World. Many species were included in the collection and are considered in the following pages.

Teucholabis flavithorax Wiedemann.

Two specimens, ♂ ♀, from Callanga, Peru.

Teucholabis tristis, sp. n. (Pl. XVI, Fig. 1).

Head and thorax shining black; wings infumed with brown; *Rs* long, only slightly arcuated.

Female.—Length, 5.6 mm.; wing, 6 mm.

Rostrum and palpi dark brown; antennæ dark brownish black; front, vertex and occiput dark shining black.

Thoracic dorsum shining black, the pronotum dull yellowish, this color continued caudad as a narrow stripe along the lateral margin of the præscutum to the wing root; pleuræ black. Halteres brown, knob yellow.

Legs, coxæ and trochanters brown, femora yellowish brown, the tip

*Contribution from the Entomological Laboratory, Cornell University.

broadly dark brown; tibiæ and tarsi dark brown; the brown femoral apices are broadest on the fore femora, narrower on the hind femora.

Wings with a light brown suffusion, a little more hyaline in cells *1st R1*, tip of cell *R* and in cell *1st M2*; stigma dark brown, oval. Venation (see Plate xvi, fig. 1): *Rs* long, almost straight; cell *1st M2* short; basal deflection of *Cu1* at the fork of *M*.

Abdomen moderately long, dark brownish black.

Holotype, ♀, Callanga, Peru, in the Hungarian National Museum.

Teucholabis fulgens, sp. n. (Pl. XVI, Fig. 2).

Head reddish; pronotum yellow; mesonotal præscutum reddish yellow with three dark spots; posterior coxæ similar in color to the other coxæ; wings hyaline with no dark brown basal spot, tip infuscated.

Female.—Length, 5 mm.; wing, 5.8 mm.

Rostrum and palpi brown; antennæ brown; front, vertex and occiput reddish.

Pronotum yellow. Mesonotal præscutum rich orange yellow, a small rounded, dark brown median spot near the cephalic margin; an oblong transverse mark of the same color on the caudal region of the præscutum; scutum yellow, the lobes more orange; scutellum light yellow; postnotum reddish orange. Pleuræ reddish orange, a rounded black spot midway between the root of the wings and the base of the halteres. Halteres brown, the knob orange yellow.

Legs, coxæ and trochanters reddish yellow, fore femora with the basal fifth yellow, remainder brownish black, tibiæ and tarsi brownish black, middle and hind femora yellow with the tip broadly dark brown, tibiæ dark brown, lightest medially, tarsi dark brownish black.

Wings subhyaline, tip slightly infuscated; a triangular brown stigma and a very narrow brown seam on the cord down to cell *1st M2*. Venation (see Plate xvi, fig. 2): *Rs* rather strongly arcuated, its origin slightly anterior to *Sc2*.

Abdomen with the six basal tergites dark brown, apical tergites and the valves of the ovipositor rich reddish yellow; sternites light reddish yellow.

Holotype, ♀, Callanga, Peru, in the Hungarian National Museum.

Teucholabis jocosa, sp. n. (Pl. XVI, Fig. 3).

Head grey; pronotum inconspicuous, yellow; mesonotal præscutum reddish yellow with three dark spots; all coxæ reddish; wings hyaline with a pale brown rounded stigma.

Female.—Length, 5.2 mm.; wing, 5 mm.

Rostrum and palpi dark brownish black; antennæ dark brownish black; front, vertex and occiput grey.

Pronotum not conspicuous, dull yellow; præscutum orange medially, lighter colored, yellowish, on the sides, a brown median stripe broadest in front near the cephalic margin of the sclerite, becoming indistinct behind at about midlength of the sclerite, a rounded brownish black spot on the sides of the præscutum near the suture; scutum, scutellum and postnotum dull brownish yellow, not brightly colored. Pleuræ dull yellow. Halteres pale yellowish brown, knob and stem almost unicolorous.

Legs, coxæ and trochanters dull yellow, femora dull yellow, the tips broadly dark brown, tibiæ yellowish brown, the tips broadly darker brown, tarsi dark brown; the brown femoral and tibial apices are subequal in length on all the legs.

Wings hyaline, with a pale brown rounded stigma. Venation (see Plate xvi, fig. 3): *Rs* long and almost straight.

Abdomen dark brownish black, the extreme apices of segments 1 to 6 indistinctly dull yellow; apical segments dull yellow, the base of the 7th tergite blackish.

Holotype, ♀, Coroico, Bolivia, in the Hungarian National Museum.

Teucholabis jucunda, sp. n. (Pl. XVI, Fig. 4).

Head black; pronotum light yellow; mesonotum light yellow with dark brown spots; pleuræ with a large blotch; hind legs blackish; halteres dark throughout; wings brown with two large enclosed subhyaline blotches.

Female.—Length, 6 mm.; wing, 8.3 mm.

Rostrum and palpi black, the former elongated; antennæ dark brownish black; front, vertex and occiput black.

Pronotum elongate, conspicuous, light yellow. Mesonotal præscutum light reddish yellow or orange yellow, a shining brownish black triangular spot on the middle of the sclerite, its anterior end broadest, its apex directed caudad and becoming much paler behind, spreading out over this part of the sclerite, a large rounded dark brown spot on the sides of the sclerite behind; scutum, lobes dark brownish black, median line and margins of the sclerite reddish yellow; scutellum and postnotum yellowish. Pleuræ light dull yellow with a very large conspicuous brownish black mark on the mesopleuræ. Halteres brownish black throughout.

Legs, fore coxæ and trochanters yellowish, rest of fore legs missing; middle coxæ and trochanters brown, base of the femora yellowish brown soon passing into the dark brown of the tip, tibiæ and tarsi dark brown; hind coxæ and trochanters black, femora, tibiæ and tarsi dark brownish black.

broadly dark brown; tibiæ and tarsi dark brown; the brown femoral apices are broadest on the fore femora, narrower on the hind femora.

Wings with a light brown suffusion, a little more hyaline in cells *1st R1*, tip of cell *R* and in cell *1st M2*; stigma dark brown, oval. Venation (see Plate xvi, fig. 1): *Rs* long, almost straight; cell *1st M2* short; basal deflection of *Cu1* at the fork of *M*.

Abdomen moderately long, dark brownish black.

Holotype, ♀, Callanga, Peru, in the Hungarian National Museum.

Teucholabis fulgens, sp. n. (Pl. XVI, Fig. 2).

Head reddish; pronotum yellow; mesonotal præscutum reddish yellow with three dark spots; posterior coxæ similar in color to the other coxæ; wings hyaline with no dark brown basal spot, tip infuscated.

Female.—Length, 5 mm.; wing, 5.8 mm.

Rostrum and palpi brown; antennæ brown; front, vertex and occiput reddish.

Pronotum yellow. Mesonotal præscutum rich orange yellow, a small rounded, dark brown median spot near the cephalic margin; an oblong transverse mark of the same color on the caudal region of the præscutum; scutum yellow, the lobes more orange; scutellum light yellow; postnotum reddish orange. Pleuræ reddish orange, a rounded black spot midway between the root of the wings and the base of the halteres. Halteres brown, the knob orange yellow.

Legs, coxæ and trochanters reddish yellow, fore femora with the basal fifth yellow, remainder brownish black, tibiæ and tarsi brownish black, middle and hind femora yellow with the tip broadly dark brown, tibiæ dark brown, lightest medially, tarsi dark brownish black.

Wings subhyaline, tip slightly infuscated; a triangular brown stigma and a very narrow brown seam on the cord down to cell *1st M2*. Venation (see Plate xvi, fig. 2): *Rs* rather strongly arcuated, its origin slightly anterior to *Sc2*.

Abdomen with the six basal tergites dark brown, apical tergites and the valves of the ovipositor rich reddish yellow; sternites light reddish yellow.

Holotype, ♀, Callanga, Peru, in the Hungarian National Museum.

Teucholabis jocosa, sp. n. (Pl. XVI, Fig. 3).

Head grey; pronotum inconspicuous, yellow; mesonotal præscutum reddish yellow with three dark spots; all coxæ reddish; wings hyaline with a pale brown rounded stigma.

Female.—Length, 5.2 mm.; wing, 5 mm.

Rostrum and palpi dark brownish black; antennæ dark brownish black; front, vertex and occiput grey.

Pronotum not conspicuous, dull yellow; præscutum orange medially, lighter colored, yellowish, on the sides, a brown median stripe broadest in front near the cephalic margin of the sclerite, becoming indistinct behind at about midlength of the sclerite, a rounded brownish black spot on the sides of the præscutum near the suture; scutum, scutellum and postnotum dull brownish yellow, not brightly colored. Pleuræ dull yellow. Halteres pale yellowish brown, knob and stem almost unicolorous.

Legs, coxæ and trochanters dull yellow, femora dull yellow, the tips broadly dark brown, tibiæ yellowish brown, the tips broadly darker brown, tarsi dark brown; the brown femoral and tibial apices are subequal in length on all the legs.

Wings hyaline, with a pale brown rounded stigma. Venation (see Plate xvi, fig. 3): *Rs* long and almost straight.

Abdomen dark brownish black, the extreme apices of segments 1 to 6 indistinctly dull yellow; apical segments dull yellow, the base of the 7th tergite blackish.

Holotype, ♀, Coroico, Bolivia, in the Hungarian National Museum.

Teucholabis jucunda, sp. n. (Pl. XVI, Fig. 4).

Head black; pronotum light yellow; mesonotum light yellow with dark brown spots; pleuræ with a large blotch; hind legs blackish; halteres dark throughout; wings brown with two large enclosed subhyaline blotches.

Female.—Length, 6 mm.; wing, 8.3 mm.

Rostrum and palpi black, the former elongated; antennæ dark brownish black; front, vertex and occiput black.

Pronotum elongate, conspicuous, light yellow. Mesonotal præscutum light reddish yellow or orange yellow, a shining brownish black triangular spot on the middle of the sclerite, its anterior end broadest, its apex directed caudad and becoming much paler behind, spreading out over this part of the sclerite, a large rounded dark brown spot on the sides of the sclerite behind; scutum, lobes dark brownish black, median line and margins of the sclerite reddish yellow; scutellum and postnotum yellowish. Pleuræ light dull yellow with a very large conspicuous brownish black mark on the mesopleuræ. Halteres brownish black throughout.

Legs, fore coxæ and trochanters yellowish, rest of fore legs missing; middle coxæ and trochanters brown, base of the femora yellowish brown soon passing into the dark brown of the tip, tibiæ and tarsi dark brown; hind coxæ and trochanters black, femora, tibiæ and tarsi dark brownish black.

Wings hyaline or subhyaline, with conspicuous brown markings on the tip, along the cord and sub-basal, so that of the ground color only the following remains: A large blotch distad of the cord extending from cell *2nd R*1 caudad into cell *Cu*1 including most of cell *1st M2*; the median blotch is irregular, embracing the middle of cells *R*, *M.* and *Cu* and the tips of the anal cells; the anal angle of the wing is pale. Venation (see Plate xvi, fig. 4): *Sc* long, *Sc*1 ending nearer to the fork of *Rs* than to its origin.

Abdomen with three basal tergites dark brown, the remaining similar in color with broad pale yellowish brown apices; sternites dark brownish black with very broad yellowish apices to the sclerites except the apical segments which are uniformly dark; ovipositor, base blackish, tip yellowish.

Holotype, ♀, Callanga, Peru, in the Hungarian National Museum.

In my key to *Teucholabis* (Psyche, vol. 20, No. 1, pp. 43, 44, 1913) *jucunda* would run down to *pulchella* Alexander, from Eastern Brazil. From this species it differs in the increase in brown markings on the thorax and the much darker wing pattern. It is much more closely related to *T. laeta* described below.

Teucholabis laeta, sp. n. (Pl. XVI, Fig. 5).

Head reddish brown; pronotum yellow; mesonotum reddish yellow with dark brown spots; pleuræ uniform; halteres dark throughout; wings with broad dark brown fasciæ, basal cells almost clear of dark color.

Male.—Length, about 4.1 mm.; wing, 5.3 mm.

Rostrum, palpi and antennæ dark brownish black. Front, vertex and occiput very deep reddish brown.

Pronotum yellow. Mesonotal præscutum rich reddish yellow with a large oval, median, dark brown blotch on the anterior portion of the sclerite, larger more rounded spots of the same color on the sides of the sclerite behind; scutum reddish, the lateral cephalic edge of the lobes with a brown blotch; scutellum and postnotum reddish yellow. Pleuræ uniform reddish yellow without black markings. Halteres uniformly dark color.

Legs, coxæ and trochanters dull yellow, fore femora with the basal third yellowish passing into dark brown, tibiæ base and tip dark, the intermediate portion somewhat lighter, yellowish; remaining femora with the dark tip narrower.

Wings subhyaline with the tip dark brown, a broad seam of the same

dark color along the cord, these two bands cutting off a large oval blotch of the ground color, base of the wing almost free from brown markings, except at the tips of the anal veins. Venation (see Plate xvi, fig. 5): *Sc* long, origin of Rs far before its tip.

Abdomen with the tergites dark shiny black, the fifth much paler, yellowish, basally and apically; sternites reddish yellow, uniform.

Holotype, ♂, Songo, Bolivia, in the Hungarian National Museum.

Closely allied to *jucunda* but much smaller, the thoracic coloration especially in the pleuræ different and wing-pattern and venational details quite distinct. It should be noted that in the genus *Teucholabis,* the males are invariably larger than the females, a condition that is quite different from what occurs in most crane flies.

Teucholabis hilaris, sp. n. (Pl. XVI, Fig. 6).

Head reddish; pronotum yellow; mesonotal præscutum yellow with three broad brown stripes confluent behind; scutellum yellow; posterior coxæ dark; wings hyaline with the tip infuscated.

Male.—Length, 5 mm.; wing, 5.5 mm. *Female.*—Length, 4 mm.; wing, 4.8-5 mm.

Rostrum and palpi brownish yellow; antennæ basal segment orange yellow, flagellum black; front, vertex and occiput orange yellow.

Pronotum conspicuous, rich orange yellow, very shiny. Mesonotal præscutum yellow with three very broad dark brown stripes which almost conceal the ground color, these stripes confluent behind near the transverse suture; scutum yellow, each lobe with a large dark brown rounded spot in the center; scutellum light yellow; postnotum brownish black. Pleuræ, propleuræ yellow; meso- and metapleuræ dark shining black. Halteres, stem brown, knob bright orange yellow.

Legs, fore and middle coxæ and trochanters light orange yellow, fore femora yellowish on basal fourth, remainder dark brown, tibiæ and tarsi brown, the former a little brighter medially; middle femora light yellow with a rather broad dark brown tip, tibiæ with the base and tip dark brown, the medial portion yellowish brown; tarsi dark brown; hind leg, coxæ and trochanters dark brownish black, femora light yellow with the tip broadly dark brown, tibiæ yellow with the base narrowly dark brown, the tip broadly of the same color, tarsi dark brownish black.

Wings, hyaline, the tip broadly infuscated with light brown; a dark brown basal spot in the region of the arculus; a dark brown triangular stigma which sends a narrow brown seam down along the cord to cell 1*st M2*. Venation (see Plate xvi, fig. 6): Origin of *Rs* opposite *Sc2*.

Wings hyaline or subhyaline, with conspicuous brown markings on the tip, along the cord and sub-basal, so that of the ground color only the following remains: A large blotch distad of the cord extending from cell *2nd R*1 caudad into cell *Cu*1 including most of cell *1st M2*; the median blotch is irregular, embracing the middle of cells *R*, *M.* and *Cu* and the tips of the anal cells; the anal angle of the wing is pale. Venation (see Plate xvi, fig. 4): *Sc* long, *Sc*1 ending nearer to the fork of *Rs* than to its origin.

Abdomen with three basal tergites dark brown, the remaining similar in color with broad pale yellowish brown apices; sternites dark brownish black with very broad yellowish apices to the sclerites except the apical segments which are uniformly dark; ovipositor, base blackish, tip yellowish.

Holotype, ♀, Callanga, Peru, in the Hungarian National Museum.

In my key to *Teucholabis* (Psyche, vol. 20, No. 1, pp. 43, 44, 1913) *jucunda* would run down to *pulchella* Alexander, from Eastern Brazil. From this species it differs in the increase in brown markings on the thorax and the much darker wing pattern. It is much more closely related to *T. laeta* described below.

Teucholabis laeta, sp. n. (Pl. XVI, Fig. 5).

Head reddish brown; pronotum yellow; mesonotum reddish yellow with dark brown spots; pleuræ uniform; halteres dark throughout; wings with broad dark brown fasciæ, basal cells almost clear of dark color.

Male.—Length, about 4.1 mm.; wing, 5.3 mm.

Rostrum, palpi and antennæ dark brownish black. Front, vertex and occiput very deep reddish brown.

Pronotum yellow. Mesonotal præscutum rich reddish yellow with a large oval, median, dark brown blotch on the anterior portion of the sclerite, larger more rounded spots of the same color on the sides of the sclerite behind; scutum reddish, the lateral cephalic edge of the lobes with a brown blotch; scutellum and postnotum reddish yellow. Pleuræ uniform reddish yellow without black markings. Halteres uniformly dark color.

Legs, coxæ and trochanters dull yellow, fore femora with the basal third yellowish passing into dark brown, tibiæ base and tip dark, the intermediate portion somewhat lighter, yellowish; remaining femora with the dark tip narrower.

Wings subhyaline with the tip dark brown, a broad seam of the same

dark color along the cord, these two bands cutting off a large oval blotch of the ground color, base of the wing almost free from brown markings, except at the tips of the anal veins. Venation (see Plate xvi, fig. 5): *Sc* long, origin of Rs far before its tip.

Abdomen with the tergites dark shiny black, the fifth much paler, yellowish, basally and apically; sternites reddish yellow, uniform.

Holotype, ♂, Songo, Bolivia, in the Hungarian National Museum.

Closely allied to *jucunda* but much smaller, the thoracic coloration especially in the pleuræ different and wing-pattern and venational details quite distinct. It should be noted that in the genus *Teucholabis,* the males are invariably larger than the females, a condition that is quite different from what occurs in most crane flies.

Teucholabis hilaris, sp. n. (Pl. XVI, Fig. 6).

Head reddish; pronotum yellow; mesonotal præscutum yellow with three broad brown stripes confluent behind; scutellum yellow; posterior coxæ dark; wings hyaline with the tip infuscated.

Male.—Length, 5 mm.; wing, 5.5 mm. *Female.*—Length, 4 mm.; wing, 4.8-5 mm.

Rostrum and palpi brownish yellow; antennæ basal segment orange yellow, flagellum black; front, vertex and occiput orange yellow.

Pronotum conspicuous, rich orange yellow, very shiny. Mesonotal præscutum yellow with three very broad dark brown stripes which almost conceal the ground color, these stripes confluent behind near the transverse suture; scutum yellow, each lobe with a large dark brown rounded spot in the center; scutellum light yellow; postnotum brownish black. Pleuræ, propleuræ yellow; meso- and metapleuræ dark shining black. Halteres, stem brown, knob bright orange yellow.

Legs, fore and middle coxæ and trochanters light orange yellow, fore femora yellowish on basal fourth, remainder dark brown, tibiæ and tarsi brown, the former a little brighter medially; middle femora light yellow with a rather broad dark brown tip, tibiæ with the base and tip dark brown, the medial portion yellowish brown; tarsi dark brown; hind leg, coxæ and trochanters dark brownish black, femora light yellow with the tip broadly dark brown, tibiæ yellow with the base narrowly dark brown, the tip broadly of the same color, tarsi dark brownish black.

Wings, hyaline, the tip broadly infuscated with light brown; a dark brown basal spot in the region of the arculus; a dark brown triangular stigma which sends a narrow brown seam down along the cord to cell 1*st M2*. Venation (see Plate xvi, fig. 6): Origin of *Rs* opposite *Sc2*.

Abdomen dark brownish black, the extreme tergal apices yellow; sternites yellow with brownish black rings.

Female.—Similar, the ovipositor and a ring on the 8th abdominal segment, yellow.

Holotype, ♂, Callanga, Peru.

Allotype, ♀, Callanga, Peru.

Paratype, ♀, Callanga, Peru.

The two types in the Hungarian National Museum, the paratype in the author's collection.

This handsome species agrees most closely with *simplex* Wied. [Aussereur Zweifl. Ins., vol. 1, pp. 549, 550; (*Limnobia*)] but is much smaller, antennæ not yellowish brown and the leg-pattern quite different. From *molesta* O. S. (Biologia Cent. Amer.; vol. 1, pp. 6, 7), it differs in its reddish head; from *gracilis* O. S. (l. c., p. 7), it differs in its thoracic pattern and much smaller size.

Teucholabis munda, sp. n. (Pl. XVI, Fig. 7).

Head dark brown above; pronotum yellow; thorax shiny black; wings hyaline with a broad brown apex and brown marks along the cord; *Rs* very short, arcuated, its origin opposite the tip of *Sc*1.

Male.—Length, 5.5 mm.; wing, 5.8 mm.

Rostrum yellow, palpi brown; antennæ with the basal segment yellow, remaining segments rounded oval, dark brownish, front yellowish, vertex and occiput very dark brown becoming lighter and brighter on the genæ.

Pronotum very light yellow, not very shining. Mesonotum entirely dark shiny black. Pleuræ black. Halteres, stem dark brownish black, the knob light yellow.

Legs, fore coxæ and trochanters light yellow, femora with the basal third yellowish darkening into brownish black apically, tibiæ and tarsi dark brownish black; middle coxæ brown, trochanters yellow, femora brownish yellow, the tip darker, tibiæ and tarsi dark brown; hind coxæ black, trochanters brownish yellow, femora brownish yellow gradually darkening to the brown tip, tibiæ and tarsi dark brownish black.

Wings subhyaline, the whole tip of the wing infuscated with light brown, the inner margin of this infuscation including the extreme tip of cell *1st M*2; stigma large, dark brown, sending a narrow brown seam along the cord; an indistinct light brown suffusion in cell *M*1, and tips of the two anal cells. Venation (see Plate xvi, fig. 7): *Rs* short and very arcuated at its origin, its base opposite the tip of *Sc*1.

Abdomen with the tergites black, sternites black, the tips of the apical sclerites broadly yellowish.

Holotype, ♂, Callanga, Peru, in the Hungarian National Museum.

T. munda differs from all of the species known to me in the great arcuation of the radial sector.

Teucholabis paradoxa, sp. n. (Pl. XVI, Fig. 8).

Head reddish brown; thorax reddish, unspotted; wings subhyaline with numerous brown spots and dots; cross vein *r-m* not present.

Male.—Length, 5 mm.; wing, 6.6 mm. *Female.*—Length, 6 mm.; wing, 6 mm.

Male and *Female.*—Rostrum reddish, palpi brown; antennæ dark brownish black throughout; front, vertex and occiput shining reddish brown.

Pronotum reddish. Mesonotum and pleuræ reddish yellow without dark markings. Halteres light brown throughout.

Legs, coxæ and trochanters brownish yellow, femora brownish yellow, the tip rather broadly dark brown, tibiæ brown darkest at the tip, tarsi dark brown; fore tibiæ almost uniformly dark brown; the dark femoral apices subequal on all the legs.

Wings, shiny, light yellowish hyaline, with numerous dark brown spots and dots as follows: Cell *C* is brown except for a space near cross vein *h; Sc2* brown with a space over the middle of cell *1st R1*. Four large brown blotches, one at the base of the wing, a second at the origin of *Rs,* a third near the stigma and the last at the end of *R1* in cell *2nd R1*. Anal angle of the wing dark, a large blotch in the end of cell *1st A;* smaller blotches at the ends of the longitudinal veins; all of the cells of the wings with abundant rounded brown dots. Venation (see Plate xvi, fig. 8): *Sc* long, *Rs* rather long and rather strongly arcuated so that cell *R* is narrowest at its middle; cross vein *r-m* obliterated by the fusion of *R* 4 plus 5 on *M* 1 plus 2 at the proximal end of cell *1st M2*; cell *1st M2* much longer than the veins issuing from it.

Abdomen, base yellowish, in the female tergites 2 to 5 light brown with dark apices; sternites brownish yellow; in the male, several of the basal tergites yellow, the abdomen expanded before the hypopygium, several segments being involved.

Holotype, ♂, Callanga, Peru.

Allotype, ♀, Callanga, Peru.

Types in the Hungarian National Museum.

The only species of *Teucholabis* that I know of with this type of wing-pattern. The obliteration of the *radio-median*

Abdomen dark brownish black, the extreme tergal apices yellow; sternites yellow with brownish black rings.

Female.—Similar, the ovipositor and a ring on the 8th abdominal segment, yellow.

Holotype, ♂, Callanga, Peru.

Allotype, ♀, Callanga, Peru.

Paratype, ♀, Callanga, Peru.

The two types in the Hungarian National Museum, the paratype in the author's collection.

This handsome species agrees most closely with *simplex* Wied. [Aussereur Zweifl. Ins., vol. 1, pp. 549, 550; (*Limnobia*)] but is much smaller, antennæ not yellowish brown and the leg-pattern quite different. From *molesta* O. S. (Biologia Cent. Amer.; vol. 1, pp. 6, 7), it differs in its reddish head; from *gracilis* O. S. (l. c., p. 7), it differs in its thoracic pattern and much smaller size.

Teucholabis munda, sp. n. (Pl. XVI, Fig. 7).

Head dark brown above; pronotum yellow; thorax shiny black; wings hyaline with a broad brown apex and brown marks along the cord; *Rs* very short, arcuated, its origin opposite the tip of *Sc*1.

Male.—Length, 5.5 mm.; wing, 5.8 mm.

Rostrum yellow, palpi brown; antennæ with the basal segment yellow, remaining segments rounded oval, dark brownish, front yellowish, vertex and occiput very dark brown becoming lighter and brighter on the genæ.

Pronotum very light yellow, not very shining. Mesonotum entirely dark shiny black. Pleuræ black. Halteres, stem dark brownish black, the knob light yellow.

Legs, fore coxæ and trochanters light yellow, femora with the basal third yellowish darkening into brownish black apically, tibiæ and tarsi dark brownish black; middle coxæ brown, trochanters yellow, femora brownish yellow, the tip darker, tibiæ and tarsi dark brown; hind coxæ black, trochanters brownish yellow, femora brownish yellow gradually darkening to the brown tip, tibiæ and tarsi dark brownish black.

Wings subhyaline, the whole tip of the wing infuscated with light brown, the inner margin of this infuscation including the extreme tip of cell *1st M*2; stigma large, dark brown, sending a narrow brown seam along the cord; an indistinct light brown suffusion in cell *M*1, and tips of the two anal cells. Venation (see Plate xvi, fig. 7): *Rs* short and very arcuated at its origin, its base opposite the tip of *Sc*1.

Abdomen with the tergites black, sternites black, the tips of the apical sclerites broadly yellowish.

Holotype, ♂, Callanga, Peru, in the Hungarian National Museum.

T. munda differs from all of the species known to me in the great arcuation of the radial sector.

Teucholabis paradoxa, sp. n. (Pl. XVI, Fig. 8).

Head reddish brown; thorax reddish, unspotted; wings subhyaline with numerous brown spots and dots; cross vein *r-m* not present.

Male.—Length, 5 mm.; wing, 6.6 mm. *Female.*—Length, 6 mm.; wing, 6 mm.

Male and *Female.*—Rostrum reddish, palpi brown; antennæ dark brownish black throughout; front, vertex and occiput shining reddish brown.

Pronotum reddish. Mesonotum and pleuræ reddish yellow without dark markings. Halteres light brown throughout.

Legs, coxæ and trochanters brownish yellow, femora brownish yellow, the tip rather broadly dark brown, tibiæ brown darkest at the tip, tarsi dark brown; fore tibiæ almost uniformly dark brown; the dark femoral apices subequal on all the legs.

Wings, shiny, light yellowish hyaline, with numerous dark brown spots and dots as follows: Cell *C* is brown except for a space near cross vein *h; Sc2* brown with a space over the middle of cell *1st R1*. Four large brown blotches, one at the base of the wing, a second at the origin of *Rs,* a third near the stigma and the last at the end of *R1* in cell *2nd R1*. Anal angle of the wing dark, a large blotch in the end of cell *1st A;* smaller blotches at the ends of the longitudinal veins; all of the cells of the wings with abundant rounded brown dots. Venation (see Plate xvi, fig. 8): *Sc* long, *Rs* rather long and rather strongly arcuated so that cell *R* is narrowest at its middle; cross vein *r-m* obliterated by the fusion of *R* 4 plus 5 on *M* 1 plus 2 at the proximal end of cell *1st M2*; cell *1st M2* much longer than the veins issuing from it.

Abdomen, base yellowish, in the female tergites 2 to 5 light brown with dark apices; sternites brownish yellow; in the male, several of the basal tergites yellow, the abdomen expanded before the hypopygium, several segments being involved.

Holotype, ♂, Callanga, Peru.

Allotype, ♀, Callanga, Peru.

Types in the Hungarian National Museum.

The only species of *Teucholabis* that I know of with this type of wing-pattern. The obliteration of the *radio-median*

cross-vein by the fusion of *R* 4 plus 5 on *M* 1 plus 2, is a new venational feature for the genus although long known in the related genus *Paratropeza* Schiner.

Genus **Paratropeza** Schiner.

1866. *Paratropeza* Schiner; Verh. Zool. bot. Ges. Wien; vol. 16. p. 932.

A very interesting group of Neotropical crane flies remarkable in the presence of cell *R*2 in the wings, *Paratropeza* being the only genus in the tribe that possessses this character (compare my key to the Antochini, Psyche, vol. 20, No. 1; pp. 40, 41; 1913).

Key to the Species of Paratropeza.

1. Cross vein *r-m* obliterated by the fusion of *R* 4 plus 5 on *M* 1 plus 2 2
   Cross vein *r-m* present 4
2. Entire thorax blue black; [head dark purplish; wings with three dark brown bands, one near the wing base, one along the cord and the last on the wing tip; abdomen black, margins of the segments yellowish.] (Brazil, Peru). *collaris* O. S. (1)
   Thorax with at least the scutellum yellowish 3
3. Thoracic præscutum entirely shiny black; wings with a narrow brown seam along the radial cross vein; [head yellow; abdomen rust yellow except the base which is black.] (Colombia). *singularis* Schin. (2)
   Thoracic præscutum reddish yellow with three broad black stripes; wings with a narrow seam along the cord, tip of the wing faintly infuscated; [head reddish yellow.] (Mexico). *præusta* O. S. (3)
4. Cell 1*st M*2 of the wings open, due to the atrophy of the outer deflection of *M*3; wings with two distinct dark brownish bands; tip of the wing infuscated. (Brazil)...*fasciolaris* Wied. (4)
   Cell 1*st M*2 closed; wings with a narrow brown seam along the cord; tip of the wing not infuscated. (Brazil). *jactans* sp. n.

(1) Osten Sacken, Berl. Ent. Zeitschr.; vol. 31, p. 190 (1887).

(2) Schiner, Novara Reise, Dipt., p. 46, pl. 2, fig. 2 (1868). (Type of the genus).

(3) Osten Sacken, Biol. Cent. Amer., vol. 1, pt. 1, p. 8 (1886).

(4) Wiedemann, Ausser. Zweifl. Insect, vol. 1, suppl., p. 552, pl. 6b, fig. 11 (1828), (as *Limnobia*).

Paratropeza collaris Osten Sacken (Pl. XVI, Fig. 9).

One ♂, from Callanga, Peru. Venation (see Plate xvi, fig. 9); *Rs* very strongly arcuated at its origin; deflection of *R* 4 plus 5 and cross vein *r* almost in a line; cross vein *r-m* obliterated by the fusion of *R* 4 plus 5 on *M* 1 plus 2; basal deflection of *Cu*1 just beyond the fork of *M*.

Paratropeza jactans, sp. n. (Pl. XVI, Fig. 10).

Thoracic præscutum yellowish with broad brown stripes; scutellum yellow; postnotum black; wings with a narrow brown seam along the cord; cross vein *r-m* present; cell 1*st M*2 closed.

Male.—Length, 6 mm.; wing, 6.8 mm.

Rostrum yellow, palpi brown; antennæ with the basal segment brownish yellow, the remaining segments brown; front and vertex brown, darkest on the vertex; occiput reddish brown.

Pronotum yellowish brown. Mesonotal præscutum dull yellow with three broad dark brown stripes confluent behind, the median stripe broad, its sides subparallel, the lateral ones very large, occupying most of the caudo-lateral portions of the sclerite; scutum dull yellow, the lobes with a large rounded dark brown spot; scutellum dull yellow; postnotum dark brownish black. Pleuræ rich reddish yellow, this color including the sternum. Halteres brownish black, the knob light yellow.

Legs, coxæ and trochanters dull yellow, rest of the legs broken.

Wings broadest in the region of the cord, subhyaline with a broadly triangular dark brown stigma, a narrow brown seam along the cord and on the outer end of cell 1*st M*2; an indistinct brown suffusion from the origin of *Rs* caudad across the wing to the tip of 2*nd A*. Venation (see Plate xvi, fig. 10): *Rs* long, very gently arcuated; deflection of *R* 4 plus 5 anterior to the cross vein *r;* cross vein *r-m* present, rather long; cell 1*st M*2 closed; basal deflection of *Cu*1 just beyond the fork of *M*.

Abdominal tergites dark brownish black with a broad yellowish apex to the sclerites; sternites yellowish.

Holotype, ♂, Theresopolis, Brazil, in the Hungarian National Museum.

Genus **Diotrepha** Osten Sacken.

1878. *Diotrepha* Osten Sacken; Cat. Dipt. N. Am.

Diotrepha omissinervis, sp. n. (Pl. XIV, Fig. 9).

Wings uniformly grey, *Sc* long, ending opposite the middle of *Rs*, tip of *R*1 atrophied; femoral and tibial apices dark brown.

Female.—Length, 8.8 mm.; wing, 6 mm.; abdomen, 7.2 mm. Hind leg, femur, 5.8 mm.; tibia, 6.3 mm.; tarsus, 4.6 mm.

Rostrum and palpi dark brown; antennæ with the two basal seg-

cross-vein by the fusion of *R* 4 plus 5 on *M* 1 plus 2, is a new venational feature for the genus although long known in the related genus *Paratropeza* Schiner.

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1866. *Paratropeza* Schiner; Verh. Zool. bot. Ges. Wien; vol. 16. p. 932.

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Key to the Species of Paratropeza.

1. Cross vein *r-m* obliterated by the fusion of *R* 4 plus 5 on *M* 1 plus 2 2
   Cross vein *r-m* present 4
2. Entire thorax blue black; [head dark purplish; wings with three dark brown bands, one near the wing base, one along the cord and the last on the wing tip; abdomen black, margins of the segments yellowish.] (Brazil, Peru). *collaris* O. S. (1)
   Thorax with at least the scutellum yellowish 3
3. Thoracic præscutum entirely shiny black; wings with a narrow brown seam along the radial cross vein; [head yellow; abdomen rust yellow except the base which is black.] (Colombia). *singularis* Schin. (2)
   Thoracic præscutum reddish yellow with three broad black stripes; wings with a narrow seam along the cord, tip of the wing faintly infuscated; [head reddish yellow.] (Mexico). *præusta* O. S. (3)
4. Cell 1*st M*2 of the wings open, due to the atrophy of the outer deflection of *M*3; wings with two distinct dark brownish bands; tip of the wing infuscated. (Brazil)...*fasciolaris* Wied. (4)
   Cell 1*st M*2 closed; wings with a narrow brown seam along the cord; tip of the wing not infuscated. (Brazil). *jactans* sp. n.

(1) Osten Sacken, Berl. Ent. Zeitschr.; vol. 31, p. 190 (1887).

(2) Schiner, Novara Reise, Dipt., p. 46, pl. 2, fig. 2 (1868). (Type of the genus).

(3) Osten Sacken, Biol. Cent. Amer., vol. 1, pt. 1, p. 8 (1886).

(4) Wiedemann, Ausser. Zweifl. Insect, vol. 1, suppl., p. 552, pl. 6b, fig. 11 (1828), (as *Limnobia*).

Paratropeza collaris Osten Sacken (Pl. XVI, Fig. 9).

One ♂, from Callanga, Peru. Venation (see Plate xvi, fig. 9); *Rs* very strongly arcuated at its origin; deflection of *R* 4 plus 5 and cross vein *r* almost in a line; cross vein *r-m* obliterated by the fusion of *R* 4 plus 5 on *M* 1 plus 2; basal deflection of *Cu*1 just beyond the fork of *M*.

Paratropeza jactans, sp. n. (Pl. XVI, Fig. 10).

Thoracic præscutum yellowish with broad brown stripes; scutellum yellow; postnotum black; wings with a narrow brown seam along the cord; cross vein *r-m* present; cell 1*st M*2 closed.

Male.—Length, 6 mm.; wing, 6.8 mm.

Rostrum yellow, palpi brown; antennæ with the basal segment brownish yellow, the remaining segments brown; front and vertex brown, darkest on the vertex; occiput reddish brown.

Pronotum yellowish brown. Mesonotal præscutum dull yellow with three broad dark brown stripes confluent behind, the median stripe broad, its sides subparallel, the lateral ones very large, occupying most of the caudo-lateral portions of the sclerite; scutum dull yellow, the lobes with a large rounded dark brown spot; scutellum dull yellow; postnotum dark brownish black. Pleuræ rich reddish yellow, this color including the sternum. Halteres brownish black, the knob light yellow.

Legs, coxæ and trochanters dull yellow, rest of the legs broken.

Wings broadest in the region of the cord, subhyaline with a broadly triangular dark brown stigma, a narrow brown seam along the cord and on the outer end of cell 1*st M*2; an indistinct brown suffusion from the origin of *Rs* caudad across the wing to the tip of 2*nd A*. Venation (see Plate xvi, fig. 10): *Rs* long, very gently arcuated; deflection of *R* 4 plus 5 anterior to the cross vein *r;* cross vein *r-m* present, rather long; cell 1*st M*2 closed; basal deflection of *Cu*1 just beyond the fork of *M*.

Abdominal tergites dark brownish black with a broad yellowish apex to the sclerites; sternites yellowish.

Holotype, ♂, Theresopolis, Brazil, in the Hungarian National Museum.

Genus **Diotrepha** Osten Sacken.

1878. *Diotrepha* Osten Sacken; Cat. Dipt. N. Am.

Diotrepha omissinervis, sp. n. (Pl. XIV, Fig. 9).

Wings uniformly grey, *Sc* long, ending opposite the middle of *Rs*, tip of *R*1 atrophied; femoral and tibial apices dark brown.

Female.—Length, 8.8 mm.; wing, 6 mm.; abdomen, 7.2 mm. Hind leg, femur, 5.8 mm.; tibia, 6.3 mm.; tarsus, 4.6 mm.

Rostrum and palpi dark brown; antennæ with the two basal seg-

ments dark brown, the flagellar segments much paler, whitish; front, vertex and occiput light greyish brown, darker behind.

Mesonotal præscutum light brown, unmarked; scutum, scutellum and postnotum of about the same color, the latter a little darker. Pleuræ uniformly brown. Halteres brown, the base of the stem paler.

Legs, coxæ and trochanters dull yellow, femora almost white with the tip broadly dark brown, tibiæ whitish with the tip very narrowly dark brown; tarsi whitish, the two terminal segments becoming more infuscated.

Wings with a grey suffusion, veins rather pale. Venation (see Plate xiv, fig. 9): *Sc* long, ending about opposite the middle of *Rs*, *Sc2* at its extreme tip, the terminal portion of *R*1 beyond the cross vein *r*, atrophied.

Abdomen long, uniform dark brown, the sternites rather brighter.

Holotype, ♀, Songo, Bolivia, in the Hungarian National Museum.

From *mirabilis* Osten Sacken (1), the only described species with dark femoral and tibial apices, this species differs as follows: *Sc* much longer, ending near the middle of *Rs* instead of just beyond its origin; the atrophy of the tip of *R*1 distinguishes *omissinervis* from all of the described forms.

Genus **Toxorhina** Loew.

1851. *Toxorhina* Loew.; Linnæa Entomologica, vol. 5, p. 400.

Toxorhina brasiliensis Westwood.

One ♀ from San Bernadino, Paraguay. Fiebrig, 1908.

Genus **Atarba** Osten Sacken.

1869. *Atarba* Osten Sacken; Monographs of the Dipt. of N. Am., vol. 4, pp. 127, 128.

Atarba varicornis, sp. n. (Pl. XIV, Fig. 10).

Antennæ very long, annulated dark brown and yellowish; femora unicolorous; wings without a stigmal spot; valves of the ovipositor very powerful; abdominal tergites dark brown.

Female.—Length, 4.2 mm.; wing, 4.9 mm.

Rostrum yellowish, the palpi a little darker; antennæ with the scapal segments dull yellow, flagellum with the basal half of each segment light yellow, the apical half abruptly dark brown, the terminal two or three segments uniformly brown; front and occiput dull brownish yellow, the vertex a little darker brown.

(1) Osten Sacken, Cat. Dipt. N. Am., p. 220 (1878); Williston, Trans. Ent. Soc. Lond., pt. 3, p. 291, fig. 65 (1896).

ments dark brown, the flagellar segments much paler, whitish; front, vertex and occiput light greyish brown, darker behind.

Mesonotal præscutum light brown, unmarked; scutum, scutellum and postnotum of about the same color, the latter a little darker. Pleuræ uniformly brown. Halteres brown, the base of the stem paler.

Legs, coxæ and trochanters dull yellow, femora almost white with the tip broadly dark brown, tibiæ whitish with the tip very narrowly dark brown; tarsi whitish, the two terminal segments becoming more infuscated.

Wings with a grey suffusion, veins rather pale. Venation (see Plate xiv, fig. 9): *Sc* long, ending about opposite the middle of *Rs*, *Sc2* at its extreme tip, the terminal portion of *R*1 beyond the cross vein *r*, atrophied.

Abdomen long, uniform dark brown, the sternites rather brighter.

Holotype, ♀, Songo, Bolivia, in the Hungarian National Museum.

From *mirabilis* Osten Sacken (1), the only described species with dark femoral and tibial apices, this species differs as follows: *Sc* much longer, ending near the middle of *Rs* instead of just beyond its origin; the atrophy of the tip of *R*1 distinguishes *omissinervis* from all of the described forms.

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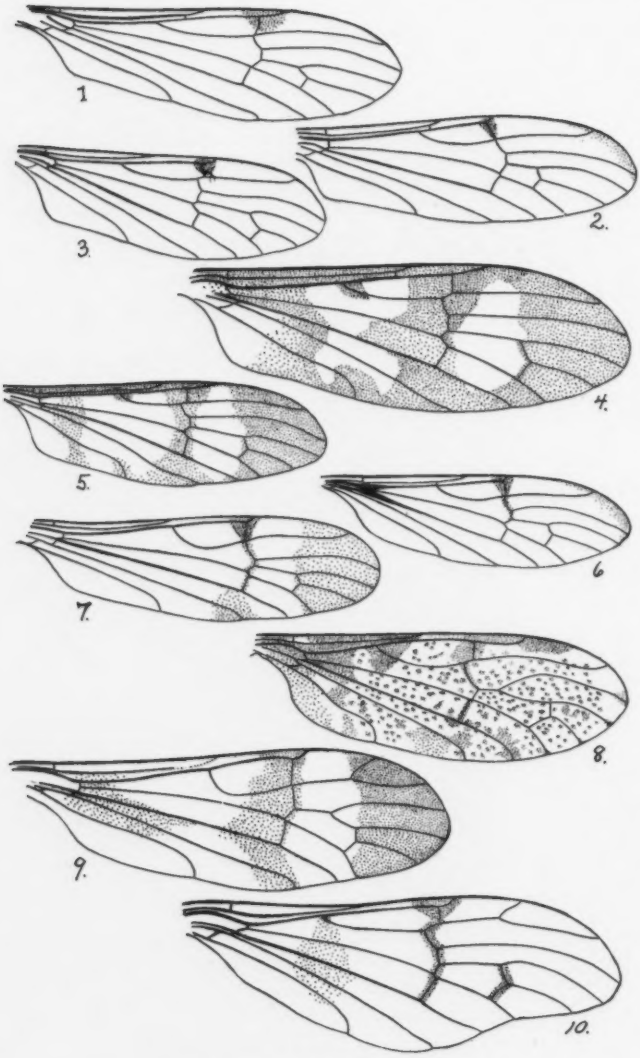

NEOTROPICAL TIPULIDAE—ALEXANDER.

Thoracic dorsum dull rich yellow, the postnotum a little more greyish. Pleuræ dull yellowish with a faint greyish bloom. Halteres light yellowish brown.

Legs, coxæ and trochanters yellow, femora, tibiæ and tarsi dull yellow, the latter passing into brown beyond the metatarsus.

Wings with a faint yellowish tinge, stigma very feebly indicated; venation (see Plate xiv, fig. 10.)

Abdomen brown, valves of the ovipositor very large, powerful, yellow, sternum light yellow, the sides of the sclerites broadly margined with brown.

Holotype, ♀, Callanga, Peru, in the Hungarian National Museum.

This is the third true *Atarba* described since the erection of the genus in 1869. It is closely allied to *picticornis* O. S., of the Eastern United States but is much smaller (wing of ♀, under 5 mm.; in *picticornis*, over 6 mm.); valves of the ovipositor very long, stout, the upper valve with the basal two-thirds enlarged, the apical third slender, acicular, lower valves flattened, blade-like; upper valves much longer than the lower valves; the abdominal tergites dark brown, in *picticornis*, the tergites dull yellow.

EXPLANATION OF PLATE XVI.

Fig. 1. Wing of *Teucholabis tristis* sp. n.; ♀.
Fig. 2. Wing of *Teucholabis fulgens* sp. n.; ♀.
Fig. 3. Wing of *Teucholabis jocosa* sp. n.; ♀.
Fig. 4. Wing of *Teucholabis jucunda* sp. n.; ♀.
Fig. 5. Wing of *Teucholabis laeta* sp. n.; ♂.
Fig. 6. Wing of *Teucholabis hilaris* sp. n.; ♀.
Fig. 7. Wing of *Teucholabis munda* sp. n.; ♂.
Fig. 8. Wing of *Teucholabis paradoxa* sp. n.; ♀.
Fig. 9. Wing of *Paratropeza collaris* Osten Sacken; ♂.
Fig. 10. Wing of *Paratropeza jactans* sp. n.; ♂.

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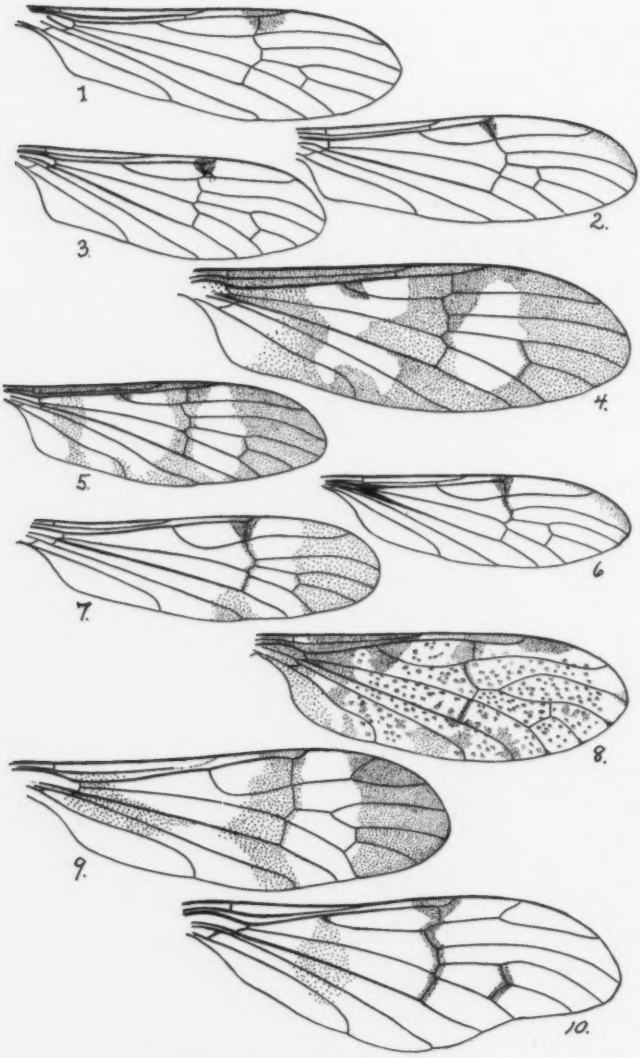

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A New Argynnis from Utah (Lep.).

By HENRY SKINNER.

Argynnis laurenti n. sp.

Expanse 19-21 mm. *Upperside.* Primaries ochraceous-orange (very nearly the color of *A. atossa*) with the markings in a general way similar to those of *helena, chariclea* and *triclaris,* but instead of the usual row of crescent-shaped spots between the row of dots across the wing and the exterior margin, there is a sinuous, narrow line of fuscous, and the marginal line has a very little fuscous at the ends of the veins. The secondaries also have the same characteristic line, replacing the lunate spots seen in the allied species. There is also a distinct and comparatively large black spot in the disc near the base of the wing which is obsolete or nearly so in the allied species.

Underside. Primaries marked as above and the large round spots distinct and well defined. The band of yellow spots of the secondaries extending across the wing from the costa to the inner margin, in a general way is like that of *helena* but differs much in detail. The veins divide this band into nine spots, the triangular one, which is the third from the costa, is much less acute than in *helena* and there is an additional spot extending from the base of this spot in the new species. The seventh spot from the costa, which is shaped like an hour-glass, is much longer than the similar spot in *helena.* This band extends to the inner margin, which is not the case in *helena.*

The marginal silvery or white lunules are entirely wanting in this species. The lighter color, the waved line on both wings, above and below, and the absence of the silvery lunules of the secondaries below, will readily separate this species from its congeners.

Described from eight specimens taken by Mr. Philip Laurent and the author, at Silver Lake (Brightons), Utah, July 10th to 14th, 1899.

Type in the collection of the Academy of Natural Sciences of Philadelphia. Named in honor of Mr. Philip Laurent, Director of the Entomological Section of the Academy.

Lectures on Insects.

Mr. Edward F. Bigelow, President of the Agassiz Association, Arcadia, Sound Beach, Connecticut, is planning to enter the lecture field more extensively in the future, and announces, as two of his topics, "The most wonderful of all insects—the Honey Bee" and "In the Microscopical World."

A new North American Genus Belonging to the Group Nemobiites (Orthoptera, Gryllidae).

By Morgan Hebard, Philadelphia, Pa.

Hygronemobius* n. gen.

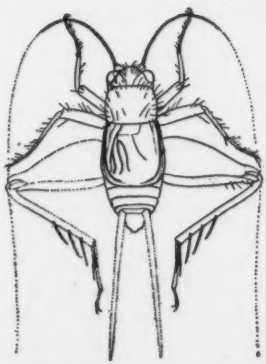
1905. *Nemobius* Morse (not of Serville, 1839), Psyche, XII, pp. 21-22.

The genus is monotypic. Genotype—*Hygronemobius alleni* [Nemobius alleni] (Morse).

Allied to *Nemobius*,† from which genus it may be separated by the somewhat differently shaped pronotum, much reduced tympanum of the caudal face of the cephalic femora and very different armament of the caudal tibiæ.

Though nearer to *Nemobius* than to any of the other allied genera, the facts that in the present genus the tegmina of the male lack a tympanum and the caudal tibiæ are each supplied with five, not six, distal spurs, show that in these characters it agrees instead with *Paranemobius*,‡ which genus is, however, very different in numerous other important respects.

Generic Description.—Size small; form compact; body pubescent and sparsely clothed with hairs. Head and its appendages similar to *Nemobius*, but with interantennal protuberance somewhat more feeble. Pronotum similar to *Nemobius*, excepting the ventro-cephalic angles of lateral lobes which are rectangulate and much sharper than the ventro-caudal angles. Tegmina very abbreviate in the male§ and wanting a tambourine, having a single oblique vein as in *Nemobius*. Wings absent. Caudal face of cephalic tibiæ bearing a small,



*From ὑλρός = moist, and *Nemobius* = grove-dweller.

† 1839. Serville. Hist. Nat. des Ins., Orth., p. 345.

‡ 1877. Saussure. Melang. Orth., II, Fasc. V, pp. 226, 231, 234-235, fig. IV.

§ All of the females known of this genus are nymphal, and Morse's statement that this sex is wingless, as well as his description of the ovipositor, in consequence cannot be used as characters for the genus or species. The nymphal females, though about two-thirds grown, show no trace of tegminal development.

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By HENRY SKINNER.

Argynnis laurenti n. sp.

Expanse 19-21 mm. *Upperside.* Primaries ochraceous-orange (very nearly the color of *A. atossa*) with the markings in a general way similar to those of *helena, chariclea* and *triclaris,* but instead of the usual row of crescent-shaped spots between the row of dots across the wing and the exterior margin, there is a sinuous, narrow line of fuscous, and the marginal line has a very little fuscous at the ends of the veins. The secondaries also have the same characteristic line, replacing the lunate spots seen in the allied species. There is also a distinct and comparatively large black spot in the disc near the base of the wing which is obsolete or nearly so in the allied species.

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Lectures on Insects.

Mr. Edward F. Bigelow, President of the Agassiz Association, Arcadia, Sound Beach, Connecticut, is planning to enter the lecture field more extensively in the future, and announces, as two of his topics, "The most wonderful of all insects—the Honey Bee" and "In the Microscopical World."

A new North American Genus Belonging to the Group Nemobiites (Orthoptera, Gryllidae).

By Morgan Hebard, Philadelphia, Pa.

Hygronemobius* n. gen.

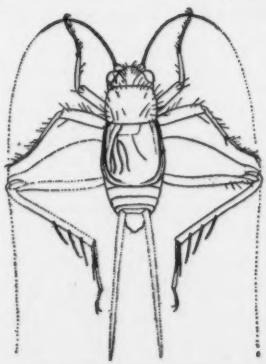
1905. *Nemobius* Morse (not of Serville, 1839), Psyche, XII, pp. 21-22.

The genus is monotypic. Genotype—*Hygronemobius alleni* [Nemobius alleni] (Morse).

Allied to *Nemobius*,† from which genus it may be separated by the somewhat differently shaped pronotum, much reduced tympanum of the caudal face of the cephalic femora and very different armament of the caudal tibiæ.

Though nearer to *Nemobius* than to any of the other allied genera, the facts that in the present genus the tegmina of the male lack a tympanum and the caudal tibiæ are each supplied with five, not six, distal spurs, show that in these characters it agrees instead with *Paranemobius*,‡ which genus is, however, very different in numerous other important respects.

Generic Description.—Size small; form compact; body pubescent and sparsely clothed with hairs. Head and its appendages similar to *Nemobius*, but with interantennal protuberance somewhat more feeble. Pronotum similar to *Nemobius*, excepting the ventro-cephalic angles of lateral lobes which are rectangulate and much sharper than the ventro-caudal angles. Tegmina very abbreviate in the male§ and wanting a tambourine, having a single oblique vein as in *Nemobius*. Wings absent. Caudal face of cephalic tibiæ bearing a small,



*From ὑλρός = moist, and *Nemobius* = grove-dweller.

† 1839. Serville. Hist. Nat. des Ins., Orth., p. 345.

‡ 1877. Saussure. Melang. Orth., II, Fasc. V, pp. 226, 231, 234-235, fig. IV.

§ All of the females known of this genus are nymphal, and Morse's statement that this sex is wingless, as well as his description of the ovipositor, in consequence cannot be used as characters for the genus or species. The nymphal females, though about two-thirds grown, show no trace of tegminal development.

scarcely perceptible, ovoid tympanum, corresponding portion of cephalic face not swollen. Caudal femora greatly dilated; caudal tibiæ with dorsal margins each armed with three pairs of extremely long, widely spaced, unmodified, mobile spines* placed in a double row and armed distad with three external and two internal spurs. The ventro-internal spur, always present in *Nemobius,* is missing in the present genus. Caudal metatarsi non-sulcate and unarmed dorsad.

Remarks.—With the exception of the characters given for the female, the original description of *H. alleni,* with which is also given valuable data on the capture and habits of the insect, is excellent. A study of the North American species of the genus *Nemobius* has prompted the examination and study of the typical material of this insect.

The peculiar reduction of the tegmina in the male of this insect is shown in the figure here given.

Distribution.—This genus is known only from the mangrove swamps of Moraine Cay in the northern Bahamas.

A New Parasite of the House Fly (Acarina, Gamasoidea).

By H. E. EWING, Corvallis, Oregon.

(Plate XVII.)

The great interest which of recent years has attached to the house fly because of the discovery of its role as a disease-carrier has caused economic entomologists to consider all possible means which may be employed for its control. As in the case of most insect pests, natural enemies have received much attention in this regard. So far, although no one species has been found that offers any serious check to the increase of the house fly, many have been recorded as preying upon it. Dr.

* These spines are evenly rounded and covered with hairs, but have, like in *Nemobius*, their apices uncinate, smooth, sharp and hard.

L. O. Howard, in his excellent volume on this pest, gives a whole chapter upon its natural enemies. These, as the author states, "begin with the acme of the vertebrate series (man himself) and end with the lower forms of plant life." Among the natural enemies listed are included: fungous diseases, protozoa, nematodes, mites, spiders, the house centipede, predaceous and parasitic insects, birds, and fly-catching rats. The parasite which I have to report is of biological interest chiefly, yet those interested in economic entomology may be glad to note that another natural enemy has been recorded for our dreaded *Musca domestica.*

Habits.

For several years the writer has noticed that a house fly is occasionally found flying about with a rather large gamasid mite hanging to it. I have caught many such flies in houses and in laboratories, and others have sent to me flies which carried this mite upon their bodies. I never have noticed more than a single gamasid upon a single fly, and this individual has usually been found running about on the body of its host. It is well known that flies, as well as many other insects, carry non-parasitic mites, especially of the family *Gamasidae,* whereby the distribution of the latter is effected. Beetles, especially, may carry a score or more of non-parasitic mites upon their bodies for long distances. In fact I have frequently found such individuals almost or quite concealed by scores of the nymphs of the genus *Uropoda,* all of which were getting a "free ride," though these injured their pseudo-host in no way. For these reasons I paid little attention to the first gamasid mites found on flies.

While at Ithaca, New York, my attention was frequently called to house flies that carried this gamasid mite. Upon an investigation I succeeded in finding mites that had their chelicerae inserted into the ventral body wall of the fly, and in one case the mite remained so attached after being killed, along with its host.

When these mites feed upon the house fly they attach themselves always at a definite place. This is at the base of the

scarcely perceptible, ovoid tympanum, corresponding portion of cephalic face not swollen. Caudal femora greatly dilated; caudal tibiæ with dorsal margins each armed with three pairs of extremely long, widely spaced, unmodified, mobile spines* placed in a double row and armed distad with three external and two internal spurs. The ventro-internal spur, always present in *Nemobius,* is missing in the present genus. Caudal metatarsi non-sulcate and unarmed dorsad.

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abdomen on its ventral surface, the anterior end of the mite being directed toward the head of the fly. The reason for the mite always taking this position is not quite clear at present. I can see two advantages in it, however; first, the mite is in a place protected from the attacks of its host; second, this position does not throw the fly out of balance when flying. In all cases thus far only the females of this parasitic mite have been found. The description of the species follows.

Description of Species.

Macrocheles muscae n. sp.

General appearance stout, robust; integument well chitinized, hence color a dark yellowish brown. Body clothed very sparsely with small, simple, curved bristles.

Mouth-parts well developed. Palpi about one-half as long as first pair of legs; first segment longest, concave on its inner margin, and about four-fifths as long as femur of leg I; second segment slightly shorter than the first; third subequal to the second; fourth slightly over one-half as long as the third, bearing many setae or hairs and a long prominent bristle slightly longer than the segment itself on its outer margin; distal segment very short, about one-third as long as segment four, and immovably joined to this segment; it has many bristles, a prominent spine at its base on the inside, and a long, slightly curved, tactile spine at its apex. Chelicerae retractile, when extended slightly surpassing the palpi; geniculate at about their middle, and strongly chelate at the apex; chelae stout, well chitinized, each with a prominent tooth on its inner margin; fixed chela with a small spine on its upper margin about one-third the distance from its base to apex; at the base of the fixed chela on its lower side is situated a long pectinate seta, about equal to the chelae themselves in length and with barbs on one side only. Hypostome prominent; about two and one-half times as long as broad, with three prominent bristles, and ending in two large cusps, between which is the tongue or lingula; lingula as long as the cusps of the hypostome, with some hairs along its sides, divided at its median line into halves each of which ends in a curved setaceous tip.

Cephalothorax not demarcated from abdomen; bearing a pair of small anteriorly directed setae on its anterior margin near the median line. Shoulder bristles but little larger than the other bristles of the body. Sternum extending to between the third pair of coxae; posterior margin concave. The sternum bears three pairs of subequal, backwardly directed, simple, almost straight setae.

Abdomen broad, evenly rounded behind. Peritreme extending from

the anterior margin of the cephalothorax to the level of the third coxae; it is bent upon itself just before the stigma is reached. Stigmal plate extending but little beyond the stigma, truncate at this end and of about equal width throughout its length, and bearing two obscure hairs, one on each side of the stigma. Metasternalia present, small, triangular; each bearing a simple, curved seta. Genital plate semidisc-shaped, with a single pair of bristles. This plate is situated directly between the fourth pair of coxae, and joins the anal plate along a straight, transverse suture. Anal plate large, somewhat shield-shaped; with four pairs of bristles. Anus circular, situated near the posterior margin of anal plate, surrounded with a thickened border of chitin in the form of a collar; at the outside margin of the collar is situated one of the four pairs of setae found on the anal plate.

Legs stout; anterior pair as long as the body; second pair about three-fourths as long, but much thickened; third pair subequal in length to second; last pair equal to the first in length, and extending beyond the posterior margin of the abdomen by the full length of its last two segments. Tarsus of leg I slightly longer than tibia, and ending in several tactile hairs; tibia considerably longer than patella; patella subequal to femur. The tarsi of the last three pairs of legs each bear a stout pair of claws, between which is situated an expanded, hyaline pulvillus. The spines toward the end of tarsus of leg II are suddenly narrowed near their tips, and end in strongly chitinized, thorn-like processes. Length of body, 0.97 mm.; width, 0.62 mm.

From Ithaca, New York, on *Musca domestica*, by Dr. J. F. Illingworth and by the writer. From Corvallis, Oregon, on *Musca domestica*, by the writer.

Description made from five female specimens, one of which was dissected. This species is quite distinct from any of our known American forms. I find that according to natural arrangement it comes next to *Macrocheles muscorum* Ewing, in my collection. It differs from this species in being about twice as large, in having triangular metasternalia instead of circular, in having the anal plate subshield-shaped instead of being oblong oval, as well as in many other particulars.

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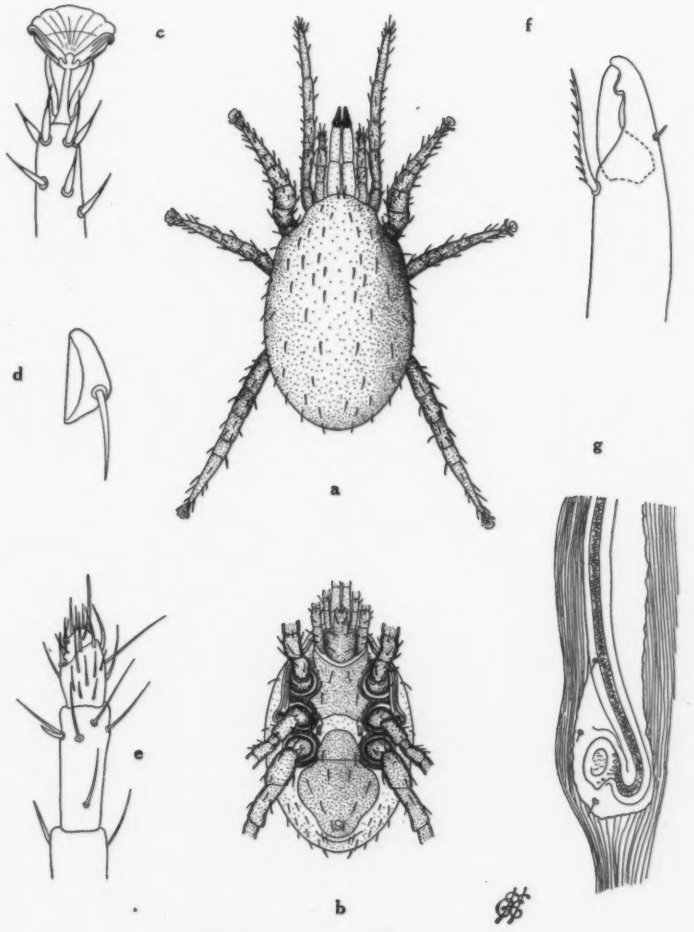
EXPLANATION OF PLATE XVII.

Macrocheles muscae n. sp. *a*, Adult female, dorsal view; *b*, ventral view of body of female; *c*, ventral view of distal end of tarsus of leg II; *d*, left metasternalium; *e*, tip of right palpus as seen from above; *f*, outside view of chela of left chelicera; *g*, posterior part of peritreme and stigmal plate showing the tracheal trunk filled with air vacuoles.

Crane-flies and Sweets (Diptera).

Mr. Claude Morley, in *The Entomologist*, for July, 1913, mentions observing *Tipula* sucking sweets. He says: "On May 23rd I was much struck by the unwonted attitude of a female *Tipula peliostigma*, which was sitting on a dogwood leaf with her body closely appressed. This appeared so unusual in the insects of this genus, which seem to invariably stand high upon the tips of their elongate legs, that I looked more closely, and found that she was greedily sucking the honey dew which had fallen from a batch of aphids. * * * I have never met with *Tipulae* on honey dew before, and consider the incident remarkable; but that the genus is fond of sweets is, I believe, a well known fact." He further mentions observing species of this genus "distinctly sucking the sweets from the stylopods of *Angelica sylvestris* * * *," and of taking them on overnight "sugar."



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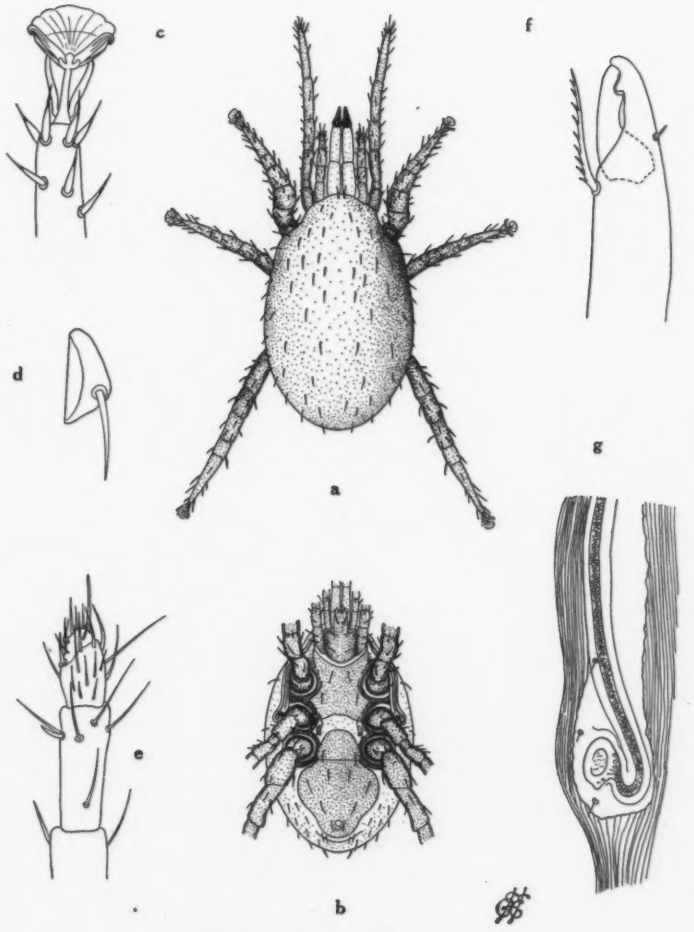

MACROCHELES MUSCAE—EWING.

Three new Genera of Chalcidoid Hymenoptera from Queensland.

By A. A. GIRAULT, Nelson (Cairns), North Queensland, Australia.

Types of the following species are in the Queensland Museum, Brisbane.

Family EULOPHIDAE.

EULOPHINI.

Eulophinusia new genus.

Female.—Differing from all the genera of its tribe in bearing 8-jointed antennæ with a 4-jointed funicle, the club solid, one ring-joint. Scutellum simple; parapsidal furrows not complete, only cephalad. Antennal club not terminating in a nipple. Propodeum with a short median carina. Mesopostscutellum rather large, well separated; pronotum also well separated. Postmarginal vein long, a third longer than the stigmal, the marginal vein shorter than the submarginal. Small. Abdomen ovate. Marginal vein about two and a quarter times the length of the stigmal. Antennæ inserted on a level with the ventral ends of the eyes. Mandibles with four or five minute teeth. Abdominal segments more or less equal, none greatly lengthened.

Male.—Not known.

Type.—The following species:

1. **Eulophinusia cydippe n. sp.**

Female.—Length, 1.12 mm.

Dark metallic green, the abdomen coppery, the wings hyaline, the antennæ dusky; legs yellowish white but the coxæ more or less concolorous. Thorax densely, finely, scaly reticulated but the scutellum and propodeum much finer, opaque or very finely alutaceous. First and second funicle joints longer than wide, subequal, longest of the funicle, the remaining two more or less subequal, wider than long; club short but longer than any of the funicle joints, the first of which is only slightly shorter than the pedicel.

(From one specimen, 2-3-inch objective; 1-inch optic, Bausch and Lomb.)

Male.—Not known.

Described from a solitary specimen captured by sweeping foliage and grass of forest along the military road, March 3, 1912.

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Male.—Not known.

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Habitat.—Australia, Thursday Island (Torres Strait).

Type.—The above specimen on a tag, the head, a hind leg and a fore wing on a slide with the type of *Archenomus niger* Girault.

OPHELIMINI.

Opheliminus new genus.

Female.—Like *Alophomorpha* Girault in antennal structure and otherwise but the scutellum is simple, the median carina of the propodeum is present but the short sulcus on each side absent. Also the abdomen is long, pointed conic-ovate, depressed above, as long as the head and thorax combined. Mandibles with about five teeth.

Male.—Not known.

Type.—The following species:

1. **Opheliminus grotii** n. sp.

Female.—Length, 2.50 mm.

Brilliant metallic green, the wings hyaline, the abdomen dark purplish, dorsad with a pale yellowish, large, subquadrate area centrally a short distance from base; ventrad this area is noticeably larger. Legs white except proximal part of hind coxa; scape also white, edged with dusky above, the flagellum black, the first funicle joint about twice the length of the pedicel, the second and third joints subequal and little the longest and stoutest; first club joint longest, equal in length to the other two combined. Reticulated, including the propodeum. Fore wings densely ciliate discally, the marginal cilia extremely short.

(From one specimen, similarly magnified.)

Male.—Not known.

Described from a single female captured by sweeping in forest and along a jungle-clad forest streamlet, June 27, 1913.

Habitat.—Australia, Nelson (Cairns), North Queensland.

Type.—The above specimen on a tag, the head and hind tibiæ together on a slide.

This beautiful species is respectfully dedicated to Hugo Grotius.

ELACHERTINI.

Genus **Pseudiglyphus** Girault.

This genus was originally assigned to the Hemiptersenini, but it belongs here since the parapsidal furrows are complete.

Family EURYTOMIDAE.

Genus **Bephratoides** Girault (*nec* Brues).

This name is preoccupied. For it I propose the new name, *Bephratelloides.*

Family PTEROMALIDAE.

SPHEGIGASTERINI.

Polycystoides new genus.

Female.—Like *Polycystus* Westwood but the antennæ only 11-jointed, the club solid; moreover, the petiole of the abdomen is short and stout, the median carina of the propodeum is intersected by a distinct transverse carina from side to side and the cephalic margin of the propodeum is carinated; the propodeum with a distinct neck and spiracular sulci; between the median carina and the spiracle along the cephalic margin is a large fovea. Mandibles strongly tridentate; transverse suture on scutellum faint. Second abdominal segment occupying about a fourth of the surface. Propodeum reticulated, the thorax inflexed at the scutellum. Head very large but wider than long. Postmarginal vein longer than the stigmal. Distal margin of scutellum carinated. Antennæ with two ring-joints. Abdomen stout, conic-ovate, somewhat longer than the thorax. Axillae widely separated. Parapsidal furrows incomplete. Hind margins of abdominal segments straight.

Male.—Not known.

Type.—The following species:

1. **Polycystoides tennysoni** n. sp.

Female.—Length, 2.50 mm.

Dark blue, opaque and punctate, the wings hyaline, the abdomen shining aeneous green; legs and antennæ yellowish brown but the coxæ dark blue and the club (which is enlarged) and distal funicle joint are black. Ring joints stout; first three funicle joints distinctly longer than wide, of them 2 and 3 longest, subequal, each a little shorter than the pedicel; joint 4 of funicle only a little longer than wide; joints 5 and 6 shortening, 6 distinctly much wider than long. Club about half the length of the funicle. Scape long and cylindrical. Tarsi pale.

(From one specimen, similarly magnified.)

Male.—Not known.

Described from a single female captured April 13, 1913, by sweeping along the edges of the jungle.

Habitat.—Australia, Thursday Island (Torres Strait).

Type.—The above specimen on a tag, the head, a hind leg and a fore wing on a slide with the type of *Archenomus niger* Girault.

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Opheliminus new genus.

Female.—Like *Alophomorpha* Girault in antennal structure and otherwise but the scutellum is simple, the median carina of the propodeum is present but the short sulcus on each side absent. Also the abdomen is long, pointed conic-ovate, depressed above, as long as the head and thorax combined. Mandibles with about five teeth.

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Preliminary List of Heterocera Captured in and around St. Louis, Missouri (Lep.).

Sphingidae to Sesiidae Arranged According to Dyar's List of North American Lepidoptera.

Compiled by PAUL A. SCHROERS, St. Louis, Mo.

SPHINGIDAE.

653 Hemaris diffinis *Boisd.*
a. axillaris *Gr. & Rob.*
656 thysbe *Fab.*
a. ruficaudis *Kir.*
667 Amphyon nessus *Cr.*
668 Sphecodina abbottii *Swain.*
669 Deidamia inscriptum *Har.*
670 Deilephila gallii *Rott.*
671 lineata *Fab.*
672 Theretra tersa *L.*
677 Pholus vitis *L.* (one spec. by F. Malkmus).
678 pandorus *Hüb.*
679 achemon *Dr.*
681 Ampelophaga choerilus *Cr.*
682 myron *Cr.*
683 versicolor *Har.*
686 Dilophonota ello *L.*
692 obscura *Fab.*
696 Phlegethontius celeus *Hüb.*
697 sexta *Joh.*
699a cingulata *Fab.* (one specimen).
701 Sphinx drupiferarum *Sm. & Abb.*
703 Sphinx gordius *Stoll.*
704 luscitiosa *Clem.*
706 chersis *Hüb.*
716 eremitus *Hüb.*
717 plebeja *Fab.*
719 Dolba hylaeus *Dr.*
721 Ceratomia amyntor *Geyer.*
722 undulosa *Walk.*
724 catalpae *Boisd.*
728 Marumba modesta *Har.*
729 Smerinthus jamaicensis *Dr.*
731 Paonias excoecatus *Sm. & Ab.*
732 myops *Sm. & Ab.*
734 Cressonia juglandis *Sm. & Ab.*

SATURNIIDAE.

739 Samia cecropia *L.*
744 Callosamia promethea *Dr.*
747 Tropaea luna *L.*
748 Telea polyphemus *Cr.*
753 Automeris io *Fab.*

CERATOCAMPIDAE.

767 Anisota stigma *Fab.*
770 virginiensis *Dr.*
771 rubicunda *Fab.*
772 Adelocephala bicolor *Har.*
774 Syssisphinx bisecta *Lint.*
776 Citheronia regalis *Fab.*

778 Basilona imperialis *Dr.*
787 Scepsis fulvicollis *Hüb.*
792 Lycomorpha pholus *Dr.* (by G. Hosenfeldt).
798 Ctenucha virginica *Charp.*

LITHOSIIDAE.

807 Hypoprepia miniata *Kir.*

ARCTIIDAE.

834 Eubaphe aurantiaca var. a. rubicundaria *Hüb.* c. brevicornis *Wal.*
836 Utetheisa bella *L.*
837 ornatrix *L.*
838 Haploa clymene *Brown.*
839 colonna *Hüb.*
840 lecontei *Boisd.* Var. e. militaris *Harvey.* f. vestalis *Pack.*
841 confusa *Lyman.*
843 Euerythra phasma *Harvey.*
846 Ecpantheria deflorata *Fab.* var. b. denudata *Slosson.*
851 Estigmene acraea *Dr.*
854 congrua *Walk.*
855 Hyphantria cunea *Dr.*
856 textor *Har.*
859 Isia isabella *Sm. & Ab.*
862 Diacrisia virginica *Fab.*
874 Apantesis virgo *L.*
879 oithona *Str.* var. a. rectilinea *French.*
880 anna *Gr.* var. a. persephone *Gr.*
882 arge *Dr.*
892 figurata *Dr.*
894 nais *Dr.*
895 vittata *Fab.* var. a. radians. b. phalerata *Har.*
907 Ammalo eglenensis *Cl.*
910 Euchaetias egle *Dr.*
917 Pygarctia spraguei *Gr.* (one spec.)
919 Halisidota tesselaris *Sm. & Ab.*

AGARISTIDAE

949 Alypia octomaculata *Fab.*

NOCTUIDAE.

964 Charadra deridens *Walk.*
967 illudens *Guenée.*
968 Raphia frater *Gr.*
972 Apatela americana *Har.*
983 populi *Riley.*
984 lepusculina *Guen.*
990 morula *Gr.*
991 interrupta *Guen.*
993 lobeliae *Guen.*
994 furcifera *Guen.*
995 hasta *Guen.*
999 radcliffei *Har.*
1007 connecta *Gr.*
1012 vinnula *Gr.*
1014 grisea *Walk.*
1024 modica *Walk.*
1026 brumosa *Guen.*
1037 xyliniformis *Guen.*
1039 impleta *Walk.*
1041 oblinita *Sm. & Ab.*
1053 Harrisimemna trisignata *Walk.*
1054 Microcoelia dipteroides *Guen.*
1055 Jaspidea lepidula *Gr.*
1059 teratophora *Her.-Sch.*
1060 Diphtera fallax *Her.-Sch.*
1067 Chytonix palliatricula *Guen.*
1074 Baileya australis *Gr.*
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1092 Balsa malana *Fitch.*
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1115 Perigea xanthioides *Guen.*
1117 vecors *Guen.*
1158 Hadena modica *Guen.*
1116 mactata *Guen.*
1202 miseloides *Guen.*
1212 passer *Guen.*
1220 vultuosa *Gr.*
1227 dubitans *Walk.*
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1232 devastatrix *Brace.*
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1267 Polia diversilineata *Gr.*
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1290 Dipterygea scabriuscula *L.*
1291 Actinotia ramosula *Guen.*
1295 Pyrophila pyramidoides *Guen.*
1300 Prodenia ornithogalli *Guen.*
1302 Laphygma frugiperda *Sm. & Ab.*
1312 Homohadena badistriga *Gr.*
1397 Rhynchagrotis alternata *Gr.*
1454 Agrotis ypsilon *Rottem.*
1467 Peridroma margaritosa var. a. saucia *Hüb.*
1476 Noctua normaniana *Gr.*
1478 bicarnea *Guen.*
1481 c-nigrum *L.*
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1489 fennica *Tausch.*
1490 plecta *L.*
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1538 Feltia subgothica *Haw.*
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1574 Paragrotis quadridentata *Gr. & Rob.*
1598 perpolita *Morr.*
1603 velleripennis *Gr.*
1649 messoria *Har.*
1708 Paragrotis albipennis *Gr.*
1753 Anytus privatus *Walk.*
1762 Ufeus satyricus *Grote.* Several specimens taken by Mr. C. Heink, December 25th, 1904.
1781 Mamestra meditata *Gr.*
1796 subjuncta *Gr. & Rob.*
1807 picta *Har.*
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1829 renigera *Stephens.*
1842 lorea *Guen.*
1890 Morrisonia confusa *Hüb.*
1950 Nephelodes minians *Guen.*
1953 Heliophila unipuncta *Haw.*
1954 pseudargyra *Guen.*
1962 rubripennis *Gr. & Rob.*
1963 albilinea *Hüb.*
1978 multilinea *Walk.*
1996 Orthodes crenulata *But.*
1997 cynica *Guen.*
1998 vecors *Guen.*
2040 Graphiphora alia *Guen.*
2059 Perigrapha prima *Smith.*
2090 Xilina antennata *Walk.*
2127 Cucullia asteroides *Guen.*
2142 Rancora solidaginis (one spec.)
2147 Bellura gortynides *Walk.*
2151 Nonagria subflava *Gr.*
2178 Papaipema purpurifascia *Gr. & Rob.*
2197 Pyrrhia umbra *Hüfnagel.*
2207 Scoleopteryx libatrix *L.*
2208 Choeophora fungorum *Gr. & Rob.*
2214 Tapinostola variana *Morr.*
2222 Orthosia bicolorago *Guen.*
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2225 aurantiago *Guen.*

2230 Orthosia helva *Gr.*
2237 Scopelosoma moffatiana *Gr.*
2249 Glaea sericea *Morr.*
2255 Epiglaea decliva *Gr.*
2300 Heliothis armiger *Hüb.*
2307 Rhodophora florida *Guen.*
2324 Schinia chrysellus *Gr.*
2332 trifascia *Hüb.*
2339 nundina *Dr.*
2346 lynx *Guen.*
2351 tertia *Gr.*
2353 jaguarina *Guen.*
2354 arcifera *Guen.*
2360 thoreaui *Gr. & Rob.*
2361 marginata *Haw.*
2427 Psychomorpha epimenis *Dr.*
2428 Euthisaniota unio *Hüb.*
2430 grata *Fab.*
2432 Noropsis hieroglyphica *Cr.* 1 specimen by Mr. G. Hosenfeldt.
2437 Cirrhophanus triangulifer *Gr.*
2443 Basilodes pepita *Guen.*
2448 Stiria rugifrons *Gr.*
2452 Stibadium spumosum *Gr.*
2456 Plagiomimicus pityochromus *Gr.*
2464 Plusiodonta compressipalpis *Guen.*
2469 Panchrysia purpurigera *Walk.*
2474 Plusia aerea *Hüb.*
2476 balluca *Geyer.*
2480 Euchalcia venusta *Walk.*
2485 Autographa biloba *Steph.*
2486 verruca *Fab.*
2487 rogationis *Guen.*
2488 precationis *Guen.*
2493 ou *Guen.*
2496 brassicae *Riley.*
2517 Autographa ampla *Walk.*
2519a simplex *Kir.*
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2541 carneola *Smith.*
2545 Paectes abrostoloides *Guen.*
2548 occulatrix *Guen.*
2551 Marasmalus inficita *Wal.*
2554 Pteraetholix bullula *Gr.*
2555 Alabama argillacea *Hüb.*
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2607 musculosa *Guen.*
2612 apicosa *Haw.*
2613 carneola *Guen.*
2618 Galgula hepara *Guen.*
2653 Metaponia obtusa *Her.-Sch.*
2654 perflava *Harvey.*
2656 Chamyris cerintha *Treitschke.*
2665 Tarache lactipennis *Har.*
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2699 Fruva apicella *Gr.*
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2764 Panula inconstans *Guen.*
2767 Meliopotis nigrescens *Gr. & Rob.*
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2806 Catocala epione *Dr.*
2807 sappho *Str.*, one specimen.
2808 agrippina *Str.*
2810 lacrymosa *Guen.*

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2428 Euthisaniota unio *Hüb.*
2430 grata *Fab.*
2432 Noropsis hieroglyphica *Cr.* 1 specimen by Mr. G. Hosenfeldt.
2437 Cirrhophanus triangulifer *Gr.*
2443 Basilodes pepita *Guen.*
2448 Stiria rugifrons *Gr.*
2452 Stibadium spumosum *Gr.*
2456 Plagiomimicus pityochromus *Gr.*
2464 Plusiodonta compressipalpis *Guen.*
2469 Panchrysia purpurigera *Walk.*
2474 Plusia aerea *Hüb.*
2476 balluca *Geyer.*
2480 Euchalcia venusta *Walk.*
2485 Autographa biloba *Steph.*
2486 verruca *Fab.*
2487 rogationis *Guen.*
2488 precationis *Guen.*
2493 ou *Guen.*
2496 brassicae *Riley.*
2517 Autographa ampla *Walk.*
2519a simplex *Kir.*
2540 Ogdoconta cinereola *Guen.*
2541 carneola *Smith.*
2545 Paectes abrostoloides *Guen.*
2548 occulatrix *Guen.*
2551 Marasmalus inficita *Wal.*
2554 Pteraetholix bullula *Gr.*
2555 Alabama argillacea *Hüb.*
2560 Scolecocampa liburna *Geyer.*
2606 Eustrotia musta *Gr. & Rob.*
2607 musculosa *Guen.*
2612 apicosa *Haw.*
2613 carneola *Guen.*
2618 Galgula hepara *Guen.*
2653 Metaponia obtusa *Her.-Sch.*
2654 perflava *Harvey.*
2656 Chamyris cerintha *Treitschke.*
2665 Tarache lactipennis *Har.*
2674 aprica *Hüb.*
2691 candefacta *Hüb.*
2699 Fruva apicella *Gr.*
2702 Spragueia onagrus *Guen.*
2711 guttata *Gr.*
2728 Hyamia perditalis *Walk.*
2734 Homopyralis contracta *Walk.*
2739 Isogona natatrix *Guen.*
2740 Hypsophora monilis *Fab.*
2754 Drasteria erechtea *Cr.*
2755 crassiuscula *Haw.*
2758 Caenurgia convalescens *Guen.*
2760 Euclidia cuspidea *Hüb.*
2764 Panula inconstans *Guen.*
2767 Meliopotis nigrescens *Gr. & Rob.*
2772 versabilis *Har.*
2806 Catocala epione *Dr.*
2807 sappho *Str.*, one specimen.
2808 agrippina *Str.*
2810 lacrymosa *Guen.*

(To be continued.)

Aesthetic Appreciation in Entomology.

By HARRY B. WEISS, New Brunswick, N. J.

Perhaps at the outset it would be well to explain in a general way just what is meant by aesthetic appreciation. An aesthetic experience, for example, is a consciousness of the beautiful, but never of the unattractive or ugly. It varies more or less with different people and what one person may consider beautiful, another will consider ugly.

The perception of some insects for instance is associated with feelings of pleasure and attraction, while others give rise to disagreeable and repulsive feelings. Practically everybody experiences the former feelings while viewing members of the Lepidoptera, while only persons having a wider knowledge of entomology will experience such feelings in connection with the Hemiptera. In other words, most people like to look at a butterfly or moth, but all other insects are classed as more or less repulsive "bugs."

As a rule the majority of people will credit the pleasurable feelings to the diverse colors of the Lepidoptera and, while they contribute somewhat to the total result, the aesthetic value of this order depends mostly on the curved lines and bilateral symmetry of its members. Curved lines are more pleasing and are considered more beautiful than straight or broken lines. It is only with difficulty that broken lines are grasped as a whole, while the direct opposite is true of continuous curves. Gradual or sweeping curves are also more pleasing than abrupt ones, this being apparent when *Tropaea luna* is viewed along with, say, *Papilio turnus*. While the delicate green of *Tropaea luna* is undoubtedly attractive, yet its aesthetic value is due to its exquisite curves and symmetry.

In a general way, a gradual curve upward and to the right is most pleasing, and such curves are common throughout the Lepidoptera. Approaching this in its capacity for stimulating pleasure is a gradual curve downward to the right. Following this are curves upward to the left and downward to the left. Referring to *Tropaea luna* again, all four of these curves are present in this moth and strikingly outlined.

Coming to bilateral symmetry, the aesthetic value of this depends upon the method of orientation and exploitation. With the Lepidoptera the eyes usually select a middle part and then make equal movements to the right and left. This is the natural method and in conformity with the relations of the eyes with their muscles.

Practically all collectors of insects start with the Lepidoptera for the simple reason that this order appeals to their aesthetic taste. This taste of course can be trained and the mental qualities along entomological lines so developed that the level of aesthetic appreciation is raised and as a result the perceptions of members of other orders of insects give rise to pleasurable feelings and enjoyment. Interest and ownership of course do not enter into aesthetic appreciation. If you enjoy your collection of Coleoptera or Lepidoptera because it is yours, you are not having an aesthetic experience. Aesthetic pleasure is an entirely disinterested operation.

The Lepidoptera on account of their form will always stand first in the order of aesthetic value and the arrangement of the other orders will vary of course with different individuals.

A Course in Applied Entomology.

The Ohio State University has established a course in Applied Entomology and announces a course of study, leading to a Bachelor of Science degree, to cover four years of under-graduate work, including such subjects as Modern Languages, Chemistry, Botany, Zoology, Geology, Horticulture and Agronomy besides a number of strictly technical Entomological courses. It is intended to fit students for technical work in the Bureau of Entomology, Experiment Stations, State and Federal Quarantine Service or as Investigators in Boards of Health or other professional positions.

Plates of Diptera and Hymenoptera.

There are at the disposal of the Bureau of Entomology, Washington, D. C., a considerable number of sets of extra plates struck from the original engravings made for the Loew-Osten Sacken Dolichopodidae, Vol. II and Ortalidae and Trypetidae, Vol. III; also plates of Saussure's American Vespidae, originally printed in the Smithsonian Miscellaneous Collections, No. 254. The latter are uncolored. To persons interested in the two orders these plates will be distributed free of charge, upon application to the Bureau of Entomology.

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ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

TO CONTRIBUTORS.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, four weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form and without covers, will be given free, when they are wanted; if more than twenty-five copies are desired, this should be stated on the MS. The receipt of all papers will be acknowledged. Proof will be sent to authors for correction only when specially requested.—Ed.

PHILADELPHIA, PA., DECEMBER, 1913.

The Annual Entomological Meetings.

Elsewhere in this number are printed announcements of the meetings of the Entomological Societies to be held in Atlanta, Georgia, during the Christmas holidays, in conjunction with the meeting of the American Association for the Advancement of Science. The attendance in general at Atlanta will not be as great as that at Cleveland last year, owing to the fact that a number of societies of zoological and other interests will meet in Philadelphia. The separation is, to our mind, regrettable, but the best that can be done under the circumstances is to make the entomological program in the Southern City as important and valuable as possible. The good effect is to be sought for not only in the minds of those already working in entomology, but also in kindling a love for and an active interest in the intellectual and practical worth and usefulness of our science in those who as yet do not possess them. We want Georgia and the adjoining States to have their opportunity as well as Ohio and Pennsylvania.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

The Lepidopterous Caterpillar in the Bromeliad from Costa Rica.

In the list of bromeliadicolous insects from Juan Viñas, Costa Rica, published in the NEWS for November, 1911 (Vol. XXII, p. 405), was a Lepidopterous larva which Dr. Dyar said was an Hepialid. I had certain reasons of my own for doubting this determination, but not being a lepidopterist, and knowing that Dr. Dyar is keen on larval characters, I was bound to accept it.

Now Dr. Dyar has received his first authentic larva of a *Castnia* and has told me that he can find no characters to distinguish larvæ of Hepialidæ and Castniidæ. This has caused me to discuss this larva from the bromeliad with him and he now agrees that it is in all probability *Castnia*. Neither of us could think of records of Hepialidæ from monocotyledonous plants, while the Castniidæ seem to affect just these plants. *Castnia lycus* is a pest on sugar cane and other species are recorded from Bromeliaceæ (see Stichel, H., Berl. Ent. Zeitschr., Vol. 53, 1908, pp. 207-208, and Kirby, W. F., Handb. Lepid., Vol. 3, 1897, p. 35).

Since writing the above I have looked up the larval habits of the Hepialidæ and find that they attack cryptogamous (ferns) as well as phænogamous plants and among these latter several monocotyledons are recorded. Hoffmann states that the larvæ of *Hepialus lupulinus* L. feed upon the roots of *Triticum vulgare* (wheat) and *Triticum repens* (Raupen der Schmetterlinge Europas, 1893, p. 48); Meyrick records the same species from several dicotyledons and also the monocotyledon *Narcissus* (Handbook of British Lepidoptera, 1895, p. 800). As far as known the European and American Hepialidæ are all root feeders, but in Australia a number of species are known to bore in the stems of plants and the solid wood of trees.—FREDERICK KNAB, U. S. National Museum, Washington, D. C.

A Sealed Paper Carton to Protect Cereals from Insect Attack.

The United States Department of Agriculture has just issued a bulletin (No. 15) in which a sealed cardboard container for cereals is described, which should do much to protect cereals from insect attack.

The economic importance of such a container for cereals which the grocer sells by the box is greater than at first appears. Packages may become infested while in the grocer's storeroom or on his

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shelves. Warehouses are also usually more or less infested by insects which crawl around on the packages. When such packages are purchased the buyer, on discovering that they have been attacked, usually returns them to the grocer; the grocer returns them to the mill where they were prepared and the mill screens the cereal and sells it as feed. The exact financial loss due to these conditions can not be accurately determined, but extensive observations lead to the belief that it is much greater than most millers suppose.

The new bulletin, which is a contribution from the Bureau of Entomology, gives photographs of the insects which attack stored cereal products. It gives the results of experiments in California with packages that were regularly closed by gluing the ends, and with those which were covered by a piece of label paper so that an insect could not enter without piercing the label. The result of this experiment showed that the non-labeled packages were thoroughly infested by insects, while the labeled packages were absolutely free from insects.

Besides the sealed carton, of which a diagram is given, other forms of packages which have been suggested for keeping out the insects are described. The bulletin may be had on application to the Division of Publications, United States Department of Agriculture.

Announcement of the Eighth Annual Meeting of the Entomological Society of America.

The eighth annual meeting of the Entomological Society of America will be held in Atlanta, Georgia, Tuesday and Wednesday, December 30 and 31, in affiliation with the meetings of the American Association for the Advancement of Science and other affiliated societies. Meetings will be held Tuesday forenoon and afternoon, beginning at 9.00 A. M., and on Wednesday forenoon. The meetings of the American Association of Economic Entomologists will begin Wednesday afternoon with other meetings on Thursday and Friday.

The by-laws provide that there shall be held at the annual meeting a technical exhibit of entomological materials and methods. Any photographs, drawings, specimens, novelties, apparatus, or other matter of interest to entomologists which you may wish to exhibit will be heartily welcomed. This exhibit will remain open during the entire period of the meeting, for the examination at their leisure, of those interested.

The annual business meeting will be held Wednesday morning, December 31st, for the reports of the executive committee, the treasurer, the editor of the Annals, the auditing committee, the election of new members, and the transaction of all other business.

The Annual Public Address will be given on Wednesday evening,

December 31st, by Dr. E. P. Felt, State Entomologist of New York. His subject will be "Gall Insects."

It is impossible to give any information at this date as to whether reduced fares will be available to Atlanta or not. Practically all ticket agents are provided with tariff regulations and can tell whether convention rates are available or not. If the certificate form of ticket is used the following should be noted:

1. Tickets at full fair for the GOING journey may be secured within three days (exclusive of Sunday) prior to and during the first three days of the meeting. The advertised dates of the meeting, A. A. A. S., are December 29, 1913, to January 3, 1914.

2. Present yourself at the railroad station for ticket and certificate at least thirty minutes before departure of the train.

3. Certificates are not kept at all stations. If you inquire at your station you will find out whether certificates and through tickets can be obtained to the place of meeting. If not obtainable at your home station, the agent will inform you at what station they can be obtained. You can in such case purchase a local ticket thither, and there purchase through ticket and secure certificate to place of meeting. Be sure that when purchasing your going ticket, you request a *certificate. Do not make the mistake of asking for a receipt.*

A fee of 25 cents will be charged at the meeting for validating certificates. No refund of fare will be made on account of failure to have certificate validated.

A smoker will be held on one of the evenings during the week of the meeting of the A. A. A. S. The date will be announced later.

The hotel arrangements enjoyed by members of the American Association will be accorded to the members of this society. The same hotel will be used for headquarters as that used by the American Association of Economic Entomologists and will be announced later.

ALEX. D. MACGILLIVRAY, *Secretary-Treasurer.*
CHARLES J. S. BETHUNE, *President.*

The Twenty-sixth Annual Meeting of the American Association of Economic Entomologists.

The 26th Annual Meeting of the American Association of Economic Entomologists will be held at Atlanta, Ga., on December 31, 1913, to January 2, 1914. At the last annual meeting of this Association a plan was adopted for holding a meeting of this Association and meetings of the sections on Horticultural Inspection and Apiary Inspection. At that time it was arranged that the Vice-Presidents of the Association should preside over these sections and each section elect a secretary, who will record the proceedings at the sectional meeting. It is proposed to hold a general meeting of this Association on De-

shelves. Warehouses are also usually more or less infested by insects which crawl around on the packages. When such packages are purchased the buyer, on discovering that they have been attacked, usually returns them to the grocer; the grocer returns them to the mill where they were prepared and the mill screens the cereal and sells it as feed. The exact financial loss due to these conditions can not be accurately determined, but extensive observations lead to the belief that it is much greater than most millers suppose.

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cember 31, 1913, at 1.30 P. M., at which time the general business of the Association will be transacted and the annual address of the President will be presented. Meetings on the following day will be devoted to the reading of papers before the Association and to sectional meetings, and care will be taken to arrange the program, so that members, attending the sectional meetings, will be able to hear such papers at the general meeting as may be of special interest to them. The meeting of the section on Horticultural Inspection will be in charge of Prof. E. L. Worsham, Atlanta, Ga., and the Secretary of this section is Prof. J. G. Sanders, Madison, Wis. Prof. Wilmon Newell will preside over the section on Apiary Inspection, and the Secretary of this section is Dr. E. F. Phillips, Washington, D. C. The general arrangement of other sessions of the Association at this meeting cannot be decided upon until the titles of papers have been received.

In accordance with our usual custom, the time allowed for presenting a paper should not exceed 15 minutes. In cases where the subject may be of particular interest to all members, this time may be extended, provided it will not result in overcrowding the program. A considerable number of members have already signified their intention of being present at Atlanta, and a meeting of unusual interest is anticipated.

PROF. P. J. PARROTT, *President*, Geneva, New York.
A. F. BURGESS, *Secretary*, Melrose Highlands, Mass.

Entomological Literature.

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in Heavy-Faced Type refer to the journals, as numbered in the following list, in which the papers are published, and are all dated the current year unless otherwise noted, always excepting those appearing in the January and February issues of the News, which are generally dated the year previous.

All continued papers, with few exceptions, are recorded only at their first installments.

The records of systematic papers are all grouped at the end of each Order of which they treat, and are separated from the rest by a dash.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington.

2—Transactions, American Entomological Society, Philadelphia. **3**—American Naturalist. **4**—The Canadian Entomologist. **5**—Psyche. **8**—The Entomologist's Monthly Magazine, London. **9**—

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cember 31, 1913, at 1.30 P. M., at which time the general business of the Association will be transacted and the annual address of the President will be presented. Meetings on the following day will be devoted to the reading of papers before the Association and to sectional meetings, and care will be taken to arrange the program, so that members, attending the sectional meetings, will be able to hear such papers at the general meeting as may be of special interest to them. The meeting of the section on Horticultural Inspection will be in charge of Prof. E. L. Worsham, Atlanta, Ga., and the Secretary of this section is Prof. J. G. Sanders, Madison, Wis. Prof. Wilmon Newell will preside over the section on Apiary Inspection, and the Secretary of this section is Dr. E. F. Phillips, Washington, D. C. The general arrangement of other sessions of the Association at this meeting cannot be decided upon until the titles of papers have been received.

In accordance with our usual custom, the time allowed for presenting a paper should not exceed 15 minutes. In cases where the subject may be of particular interest to all members, this time may be extended, provided it will not result in overcrowding the program. A considerable number of members have already signified their intention of being present at Atlanta, and a meeting of unusual interest is anticipated.

PROF. P. J. PARROTT, *President*, Geneva, New York.
A. F. BURGESS, *Secretary*, Melrose Highlands, Mass.

Entomological Literature.

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in Heavy-Faced Type refer to the journals, as numbered in the following list, in which the papers are published, and are all dated the current year unless otherwise noted, always excepting those appearing in the January and February issues of the News, which are generally dated the year previous.

All continued papers, with few exceptions, are recorded only at their first installments.

The records of systematic papers are all grouped at the end of each Order of which they treat, and are separated from the rest by a dash.

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437, iv, 99-142. **Meek, C. F. U.**—The metaphase spindle in the spermatogenetic mitoses of "Forficula auricularia," **177,** 1913, 249-265.

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oder verkannter formen, **92,** ix, 242-247 (cont.). **Gibbs, A. E.**—The genus Coenonympha, **131,** 1912-13, 13-20. **Hampson, G. F.**—Catalogue of the Noctuidae in the Collection of the British Museum, 626 pp., **449.** **Seitz, A.**—"Heliconius" (in part), **173,** Lief. 49-50. **Seitz, Fruhstorfer, Jordan & Lehmann.**—Die Grossschmetterlinge der Erde. Fauna americana, Lief. 51-53, pp. 393-424. **Smolian, K.**—Ueber die variabilitat des braunen barenspinners (Arctia caja), **279,** l, 411-600. **Walsingham, Lord.**—Biologia Centrali-Americana. Lepidoptera Heterocera, iv, 113-224.

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have been examined, also a specimen from Malaga, New Jersey, taken by Mr. E. Daecke. It appeared as *Nehalennia integricollis,* a *nomen nudum,* in the New Jersey List of 1910. The female of the new species is more nearly related to the European *speciosa,* in the same genus than to any of the American species. The differences between the species were pointed out and illustrated by sketches.

A letter was read from Mr. Nathan Banks requesting the Section to appoint two persons to represent it on the Nomenclature Committee of the International Entomological Congress. Mr. J. A. G. Rehn and Mr. E. T. Cresson, Jr., were elected to act in this capacity.

Mr. John Enburg was elected an Associate of the Section.

Meeting of September 25th, 1913. Mr. H. W. Wenzel, Vice-Director, in the chair; twelve persons present. Mr. J. R. Malloch spoke of his impressions of this country entomologically. He said many species of insects, particularly Diptera, supposed to be common to this country and Europe, were often found to be different species, and dwelt on the care necessary to determine these points accurately. He mentioned the exceedingly wide distribution of certain species of Diptera and compared the work of himself and another entomologist working on the same group and said their work was quite dissimilar. He mentioned the numerous local lists published in England and the many local societies there.

Dr. Calvert referred to Hagen's figure in the Zoologischer Anzeiger for 1889 of an Odonate wing (*Epiaeschna heros*) split into its two laminae and exhibited a similar preparation of a wing of *Libellula luctuosa* Burm. mounted as a lantern slide. The wing of a teneral specimen was cut off close to the body and the two laminae separated at the base of the large veins enough to admit of the entrance of the nozzle of a pipette. The wing was then immersed in water and water forced in between the laminae by the pipette until the laminae were completely separated and the wing resembled a sack or bag. The laminae were then cut apart along their

edges, first along the hind margin and then along the front margin. This cutting may be done with a pair of scissors, a scalpel or even with the nozzle of the pipette. When the laminae are almost, or entirely, separated they are floated on to a glass plate, as in mounting sea-weeds, and dried covered with another plate.

He also read from a recent paper of Bervoets (Ann. Soc. Ent. Belg. July 4, 1913) who has shown that the wings of insects are not dry dead organs, but contain circulating blood and are living and sensitive.

Mr. Rehn exhibited Orthoptera of the genera *Dichopetala, Insara* and *Arethaea* belonging to the Hebard collection. It is the most extensive series of these forms known. All the known forms of these katydids had been examined and nearly all were represented in the collection shown.

Dr. Skinner referred to some collecting he had done during the month of August, 1913, in the White Mountains of New Hampshire. August the 20th he made the ascent of Mt. Washington in search of *Argynnis montinus* and captured seven specimens. The first one was taken at timber-line near the Half-way House on the carriage road from the Glen House. The remainder were found on the road between the 4th and 5th mile-posts and none were seen beyond the latter point. The species was rather wary and those taken were resting on golden-rod or sunning themselves in the dust of the road. A number of specimens of *Somatochlora elongata* were taken around a small pond near the Jackson Falls house. Insects were scarce on account of the prolonged drought. A number of species of moths were taken at electric lights.

Mr. Hornig reported the salt-marsh mosquito, *Aedes sollicitans,* as breeding in large numbers at the salt works at Weccacoe Avenue and Swanson Street, Philadelphia. These mosquitoes were annoying at the Navy Yard and existed by thousands. He described the general condition of the locality. He also reported finding 406 Dipterous larvæ in two cubic inches of pig excrement from the piggeries in South Philadelphia.

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edges, first along the hind margin and then along the front margin. This cutting may be done with a pair of scissors, a scalpel or even with the nozzle of the pipette. When the laminae are almost, or entirely, separated they are floated on to a glass plate, as in mounting sea-weeds, and dried covered with another plate.

He also read from a recent paper of Bervoets (Ann. Soc. Ent. Belg. July 4, 1913) who has shown that the wings of insects are not dry dead organs, but contain circulating blood and are living and sensitive.

Mr. Rehn exhibited Orthoptera of the genera *Dichopetala, Insara* and *Arethaea* belonging to the Hebard collection. It is the most extensive series of these forms known. All the known forms of these katydids had been examined and nearly all were represented in the collection shown.

Dr. Skinner referred to some collecting he had done during the month of August, 1913, in the White Mountains of New Hampshire. August the 20th he made the ascent of Mt. Washington in search of *Argynnis montinus* and captured seven specimens. The first one was taken at timber-line near the Half-way House on the carriage road from the Glen House. The remainder were found on the road between the 4th and 5th mile-posts and none were seen beyond the latter point. The species was rather wary and those taken were resting on golden-rod or sunning themselves in the dust of the road. A number of specimens of *Somatochlora elongata* were taken around a small pond near the Jackson Falls house. Insects were scarce on account of the prolonged drought. A number of species of moths were taken at electric lights.

Mr. Hornig reported the salt-marsh mosquito, *Aedes sollicitans,* as breeding in large numbers at the salt works at Weccacoe Avenue and Swanson Street, Philadelphia. These mosquitoes were annoying at the Navy Yard and existed by thousands. He described the general condition of the locality. He also reported finding 406 Dipterous larvæ in two cubic inches of pig excrement from the piggeries in South Philadelphia.

Mr. Wenzel spoke of a new way of collecting insects devised by Mr. H. S. Barber, of Washington, D. C. He used shot cartridges in a revolver and shot through a tube four feet long. Insects like the Cicada, high up in trees, were readily obtained by this device.

Mr. Charles W. Frost was elected an Associate of the Section.—HENRY SKINNER, *Recorder.*

OBITUARY.

DEPARTMENT OF ENTOMOLOGY, CORNELL UNIVERSITY.

Ithaca, N. Y., October 23, 1913.

The members of the Jugatae have learned with deep sorrow of the death of our former president, associate and friend, ALFRED G. HAMMAR.

Mr. Hammar was for six years an active and enthusiastic member of our entomological group. His broad conception of his work and his high ideals were an inspiration to all who came in contact with him. In his death the scientific world has lost one who would have taken a prominent part in the development of his chosen field.

But while we realize the loss to science, it is especially our personal loss of a friend, dear to each of us, which is foremost in our thoughts. To his bereaved family we extend our deepest sympathy.

J. H. COMSTOCK,
J. CHESTER BRADLEY,
WM. A. RILEY,
Committee.

ALFRED RUSSEL WALLACE.

Alfred Russel Wallace died November 7, 1913. We shall make some reference to his entomological work in our January number.

ERRATA. On page 357, line 26, for "his series under *erica*," read "his series under *characta*."

Page 416, line 26, for "Saint-Etienne," read "Commentry."

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OF

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